ENGINEERING NEWS

A JOURNAL OF

CIVIL, MECHANICAL, MINING AND
ELECTRICAL ENGINEERING

VOLUME LXV

JANUARY—JUNE, 1911

THE ENGINEERING NEWS PUBLISHING COMPANY

NEW YORK

INDEX

TO VOLUME LXV., JANUARY--JUNE, 1911.

Subdivided into GENERAL (including *Technical Articles, Editorials, Letters to the Editor, Current News* and *Book Reviews*); ILLUSTRATIONS; AUTHORS; ENGINEERING LITERATURE; and CONTRACT PRICES.

GENERAL INDEX.

A.

Abrasive, Alundun for stair treads..(n) 691, erratum 732
Abutments:
Designing concrete abutments for steel highway bridges; Cost diagrams. By H. E. Bilger....*190
Failure of bridge abutment causes collapse of bridge over the Little Wabash River. By C. M. Dailey, *212, (let) *390
Skew abutments for deck plate girders, Western Maryland R. R....*198
Accidents:
Aeroplane:
France:
Capt. Carron killed....(n) 493
Lieut. Caumont killed....(n) 27
Marquis Mirio Paolla killed...(n) 27
Minister of War killed....(n) 644
Rheims ....(n) 644
Germany:
Johannisthal ....
Lieut. Stein killed ....(n) 741
Hoxsey killed ....(n) 180
Moisant killed ....(n) 27
San Antonio, Tex....(n) 27
Blasting:....(n) 613
Kitselas, B. C. ....
Lincoln, Neb. ....(n) 243
The Dalles, Ore. ....(n) 277
Boiler explosions:....(n) 307
Battleship "Delaware," (n) 88, (n) 277, (let) 396
Chicago, Ill., Hoisting engine..(n) 644
Estacada, Ore. ....(n) 337
Locomotive:
Baltimore & Ohio R. R., (n) 277, (n) 549
Missouri, Kansas & Pacific Ry.(n) 214
New York Central & Hudson River R. R. ....
Niagara Falls, Ont....(n) 119
Pittsfield, Mass. ....(n) 307
Verona, Pa. ....(n) 27
(See also under Accident statistics.)....(n) 307
Bridge accidents:
Failure of pier foundations and methods for reconstruction.... 403
Little Wabash River, Abutment collapse. By C. M. Dailey....*212, *390
Sheboygan, Wis., Street car falls through draw ....(n) 214
South Africa, Kowie Ry....(n) 522
Springfield, Ill., Wrecked by dynamiters ....(n) 367
Suspension bridge failure in India. By Sir Bradford Leslie.... 499
Train falls through bridge, Chili.(n) 277
Building accidents:
Barberton, Ohio, Roof failure....(n) 27
Brooklyn, N. Y., Floor failure...(n) 397
Chicago, Ill., Floor failure.... 433
Cincinnati, Ohio, Chamber of Commerce Bldg. By C. M. Stegner...*121
Cleveland, Ohio, Henke Bldg. (ed) 105, (let) 108, 117, (ed) 231, (let) 236, *238, erratum 269, (let) 329
Erie, Pa., Floor failure....(n) 307
Fort William, Ont., Grain bin.... *76
Nashville, Tenn., Wall failure...(n) 367
New York City:
Darlington apartment house..(ed) 730
Floor failure ....336, (n) 769
Washington, Pa., Foundation failure, (n) 27
Centrifugal milk tester bursts....(n) 27
Dust explosions:
Coal dust, Florence, Colo., Jan. 3.(n) 58
Sugar dust, Brooklyn, N. Y., April 28 ....
Electric railway:....(n) 549
Pittsburg, Pa., air-brake tank explosion ....(n) 58
Prevention of, Conference on....(n) 59
Sheboygan, Wis. ....(n) 214
Explosions:
Jersey City, N. J., Car of dynamite.*173
New York City, Pintsch gas, *174, Erratum, 237
Pittsburg, Pa., Air-brake tank..(n) 58
Silver Lake, N. J., Fireworks....(n) 277
Steam main, Steamer "State of Ohio," (n) 583
(See also Blasting accidents; Boiler explosions; Gas and gasoline explosions; Powder and dynamite explosions; etc.)
Fires:
Albany, N. Y., State capitol, (n) 397, (ed) 420, (n) 465
America's fire loss. By W. H. Merrill ....
Amherst, N. S. 180
Anderson's Ferry, Ohio....(n) 549
Bangor, Me. ....(n) 549, (ed) 569
Benton Harbor, Mich. ....(n) 583
Brooklyn, N. Y....(n) 549
Buffalo, N. Y., Steamer "North West" ....
Chicago, Ill. ....(n) 709
Cincinnati, Ohio, Chamber of Commerce. By C. M. Stegner....(n) 88
Colon, Panama *121
Danbury, Conn. ....(n) 397
Danger of, in cinder fill embankments. By J. M. Bischoff....(n) 522
Edinburg, Scotland ....(let) 545
Jefferson City, Mo., State capitol.(n) 583
Kokomo, Ind. ....(n) 214
Los Angeles, Cal. ....(n) 307
Marshalltown, Iowa ....(n) 337
Mine fires. By H. M. Wilson....(n) 118
.... 672
Accidents: Fires:
Minneapolis:
Electric power station....(n) 59
Reinforced-concrete building ..(n) 28
New York City:
Asch Bldg. (ed) 387, *396, (ed) 420, 458, (n) 464, 490, 493, 515
Coney Island, "Dreamland," (n) 677, (n) 742, (ed) 730
Omaha, Neb.:
C., St. P., M. & O. Ry. roundhouse,
Union Stock Yards Co....(n) 522
Philadelphia, Pa. ....(n) 214
Pitt River, B. C....(n) 88
Russian Poland, Colliery....(n) 464
Sanbornville, N. H....(n) 151
San Luis Potosi, Mex....(n) 464
Sioux Falls, So. Dak....(n) 27
Sydney, N. S....(n) 583
Waste from in the U. S. By W. L. Fisher ....(n) 151
.... 673
Floor failures. (See Building acidents.)
Flywheel explosions:
Greensburg, Ind. ....
Lowell, Mass. ....(n) 337
Sutton, Mass. ....(n) 151
(See also Accident statistics.)....(n) 88
Forest fires:
Japan, Hokkaidi Province....(n) 769
Montana and Idaho. By A. A. Northrop ....
New England ....(let) *635
Gas and gasoline explosions:....(n) 583
Connellsville, Pa. ....
Danville, Va. ....(n) 88
New York City, Grand Central Station ....(n) 277
....*174, erratum 237
Niagara Falls, Ont....(n) 337
Niobara, Neb. ....(n) 119
St. Louis, Mo. ....(n) 522
Landslides:
Panama Canal....(ed) 17, 21, 276, (n) 337, *370
(See also Snowslides.)
La Salle St. Tunnel, Chicago, Ill..(n) 583
Mine accidents:
East Canonsburg, Pa....
Larksville, Pa. ....(n) 397
Negaunee, Mich. ....(n) 613
Scranton, Pa. ....(n) 583
Thacker, W. Va. ....(ed) 485
Tonopah, Nev. ....(n) 27
Throop, Pa. ....(n) 277
Virginia, Minn. ....(n) 464, (ed) 485
Mine explosions:....(n) 337
Elk Garden, W. Va....
Gayton, Va. ....(n) 523
Littleton, Ala. ....(n) 119
Mineral, Kan. ....(n) 464
Prevention of:....(n) 367
Experimental coal mine for study of causes. By C. S. Rice.... 436
Fire damp detector ....(n) 406
Work of the U. S. Bureau of Mines. By J. K. Clement ....
Radersburg, Mont. 63
Sydney, N. S. ....(n) 119
Trinidad, Colo. ....(n) 59
New York City, Men killed on New York Central & Hudson River R. R. by third rail ....(n) 243
Philadelphia, Pa.:....(n) 549
Sign falling kills 3 people....(n) 151
Spilling of molten steel kills workmen ....
Pneumatic caisson, Newark, N. J..(n) 493
Powder and dynamite explosions:....(n) 151
Arrest of men suspected of recent outrages ....(ed) 513, (n) 523
Cleveland, Ohio, Bridge wrecked.(n) 397
El Paso, Tex....(n) 27
Jersey City, N. J., Central R. R. of N. J. car and pier wrecked....*173
Los Angeles, Cal., Llewellyn Iron Works ....(n) 27
Milwaukee, Wis., Crane wrecked. By J. C. Pinney, Jr....(n) 367, *438
Springfield, Ill., Bridge wrecked.(n) 367
Springfield, Mass., Attempt to wreck municipal building ....(n) 434
Powder mill explosions:
Fayville, Ill. ....
Ishpeming, Mich. ....(n) 151
Oliphant, Pa. ....(n) 180
Pleasant Prairie, Wis. ....(n) 243
Pompton, N. J. ....(n) 337
San Martine, Argentina ....(n) 243
Wapwallopen, Pa. ....(n) 88
Railway:....(n) 119, (n) 307
Atchison, Topeka & Santa Fe Ry...(n) 277
Atlantic Coast Line R. R....(n) 397
Baltimore & Ohio R. R....(n) 27
Boston & Maine R. R....(n) 613
Chesapeake & Ohio R. R....(n) 27
Chicago, Burlington & Quincy R. R., (n) 677
Chili, Train falls through bridge, (n) 277
Denver & Rio Grande R. R....(n) 613
Drawbridge accidents, Causes..(ed) 633
England, Midland Ry. By H. R. Wilson *102
Federal investigation of....(ed) 199
France, Western Ry....(n) 214
Grand Trunk Ry....(n) 180
Minneapolis, St. Paul & Saulte Ste. Marie Ry....(n) 709
New York Central & Hudson River R. R. ....(n) 88
New York, New Haven & Hartford R. R. ....
Northern Pacific Ry....(n) 741
Pennsylvania R. R....(n) 58
Pennsylvania R. R.....(n) 549, (n) 583
Pennsylvania R. R. accident at Martin's Creek investigated.... 768
Accidents: Railway:
Prevention. (See Signals and signaling.)
South Africa, Kowie Ry....(n) 522
Southern Pacific Ry. ....(n) 277
Vandalia R. R., No accidents..(n) 493
Wales, Hopkinstown ....(n) 119
Railway accident statistics....(n) 220
Responsibility for apartment house failure in New York City. No arrests in 7 years....(n) 583
Shipwrecks:....(ed) 730
Causes of ....
Coal barges off Cape Cod....(n) 619
Dredge, Gulf of Mexico....(n) 88
"Iroquois" sunk ....(n) 243
"Maria Russ" aground....(n) 464
"Merida" sunk ....(n) 88
"Prinzess Irene" aground....(n) 644
"San Fernando" sunk....(n) 464
Steam pipe bursts, Manchester, N. H.(n) 493
Trespassers killed on the Pennsylvania R. R. since 1900....(n) 434
Water main bursts, New York City.(n) 59
Accident statistics:....(n) 795
Boiler, elevator and flywheel accidents. (n) 243, (n) 337, (n) 367, (n) 781
Bulletin of the U. S. Bureau of Labor. Eng. Lit. Sup....
United States ....(n) 583, (n) 645
Addressing letters to a corporation, Directions ....(let) 637
Advertising:
Alkali-proof cement ....(ed) 263
Fraudulent concerns advertising in the "Situation-open" columns ....(ed) 570
Prejudice against holding exhibits of engineering materials by engineering societies ....(ed) 543
Aerial navigation:
Aeroplane accidents. (See Accidents.)
Aeroplane, Elements of dynamic flight. Eng. Lit. Sup.... 56
Aeroplane flight from Key West, Fla., to Havana ....(n) 151
Aeroplanes, Principles and design of. Eng. Lit. Sup.... 71
Artillery for shooting at balloons and airships, Krupp balloon guns. By F. P. Mann.... *452
Birdflight as a basis of navigation. Eng. Lit. Sup.... 71
Distance record for aeroplanes for 1910 ....(n) 27
Flight from land to warship made by Ely at San Francisco....(n) 119
France:
Aeroplane flight of 13 miles with five passengers ....(n) 151
Balloon sheds *166
Lieut. Bague flies 130 miles over sea. (n) 307
Paris-to-London race ....(n) 769
Paris-to-Madrid race ..(n) 644, (n) 709
Paris to Rome and Turin. (n) 709, (n) 741
Speed of 90.2 miles per hour made by aeroplane ....(n) 434
Germany:
Balloon shed of a take-down construction *25
Siemens-Schuckert dirigible balloon launched ....(n) 151
How it flies, or the conquest of the air. Eng. Lit. Sup.... 40
London to Paris without stop by aeroplane ....(n) 493
Monoplanes and biplanes. Eng. Lit. Sup. 88
Municipal aerial docks proposed in Modesto, Cal. ....(n) 41
Texas cross-country trip....(n) 307
Vehicles of the air. Eng. Lit.. Sup . 71
Air-brakes:
Control-valve air-brake and the electrically controlled triple-valve. By F. M. Nellis.... 58
Developments during 1910. Report of Block-Signal and Train-Control Board 83
Increased braking power for freight cars. By J. P. Kelly.... 779
Master Car Builders' Association Convention 794
Air compressors:
Compressed air, Theory and computations. Eng. Lit. Sup.... 7
Compressed air plant, Production, transmission and use of compressed air. Eng. Lit. Sup.... 7
Hydraulic, Robbing air of oxygen by hydraulically compressing it for mine air supply....(n) 391
Plant for driving the Moodna siphon on the New York Aqueduct.... 223
Profitable refinements in contractors' compressed air plants. By Frank Richards *472
Air pressure in the New York Subway, "The subway ear." By Frank Richards ....(let) 330
Alaska:
Boundary survey, Methods and progress on. By D. W. Eaton....*495
Copper mines opened....(n) 403
Mineral production for 1910....(n) 98
Algae, Effect of light on organisms. Eng. Lit. Sup.... 85
Alkali, Effect of alkali on concrete, Cement Co.'s advertisement....(ed) 263
Alloys:
Aluminum-bronze cylinder castings, Hydraulic-pressure tests of. By C. H. Carpenter and C. A. Edwards..*376
Aluminum - magnesium - copper called "Duralumin" ....(n) 27
Electrolytic iron, Experiments at the University of Illinois. By C. F. Burgess 356
Titanium-steel rails, Large order of. (n) 149
Alundum, Abrasive on cast-iron stair treads ....(n) 691, (n) 732
America, Impressions of by an English engineer. By W. F. Goodrich.... 348
American Economic Association, Review. Vol. 1, No. 1. Eng. Lit. Sup.... 51
American Institute of Chemical Engineers, Semi-annual meeting.... 794
American Institute of Consulting Engineers:
Code of ethics and schedule of fees.... 795
Opposition to laws licensing engineers. By E. W. Stern....(let) 269
American Institute of Electrical Engineers:
Annual convention 241
Jackson, Dugald C., President. By Henry H. Norris....†135
American Institute of Mining Engineers, Members views on the Panama Canal work ....(ed) 569, 579
American Public Health Association, Journal of. Eng. Lit. Sup.... 30
American Railway Engineering and Maintenance of Way Association; Fritch, Louis Charlton, President. By F. R. Coates....†136
American Railway Engineering Association:
Abstracts of committee reports.... 372, *382, *410, 411, *414, *463, 716
Annual convention 383
American Railway Master Mechanics' Association, Convention 766
American Society for Testing Materials, Proceedings for 1910. Eng. Lit. Sup. 44
American Society of Agricultural Engineers, Annual meeting. By C. O. Reed 24
American Society of Civil Engineers:
Annual meeting 113
Approval of the work on the Panama Canal ....[illegible]
Endicott, Mordecai T., President. By A. C. Cunningham....†1[illegible]
Report on licensing engineers, Proposed Law, Objections to.... (ed) 106, 115, (lets) 139, 20[illegible], 235, 236
American Society of Mechanical Engineers:
Committee opposes licensing of engineers ....(n) 214
Meier, Edward Daniel, President. By H. L. Aldrich and Wm. H. Boehm..†134
Pittsburg meeting 707
American Water Works Association:
Convention 732
Proceedings. Eng. Lit. Sup.... 14
American Year Book, Review of. Eng. Lit. Sup. 36
Aqueducts:
Buffalo, N. Y., Water-works tunnel and intake. By C. H. Hollingsworth...*153
Los Angeles, Cal., Tunnel 10-A, Progress and cost data on. By C. H. Richards 748
New York Water Supply:
Catskill:
Fast shaft sinking record made.(n) 464
Geology of. Eng. Lit. Sup.... 70
Moodna siphon, Air compressor plant for 223
Pressure tunnel under Hudson River (n) 180
Pressure tunnel under Hudson River. By A. D. Flinn....*339
Rondout pressure tunnel, Construction methods. By A. D. Flinn...*654
Pressure tunnel under New York City; Difficulties likely to be met. (ed) 570, 582
Roman aqueduct across the Garde River, near Nimes, France. By L. A. Robb *309
Washington, D. C., Leakage of 2,000,000 gals. per day....(n) 151
Arboriculture:
Care of trees in lawn, street and park. Eng. Lit. Sup.... 36
Shade-trees in towns and cities. Eng. Lit. Sup. 36
Arch centering:
Details of centering for 281-ft. concrete arch of the Monroe St. Bridge, Spokane, Wash. By P. F. Kennedy....*546
Steel centering 280-ft. arch, Rocky River, Ohio. By W. J. Watson.... *722, (ed) 729
Suspended flexible centering for Chickahominy River Bridge, Va. By Philip Aylett....*717, (ed) 729
Arch theory, German monograph on the elastic arch. (German text.) Eng. Lit. Sup. 57
Arches:
Bamboo arch highway bridge in Java, Dutch East Indies. By W. G. Bligh.*195
Concrete:
American, Some observations on recent concrete arch bridges. By H. S. Jacoby 590

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

227042

Arches: Concrete:
Dallas and Oak Cliff, Texas, Reinforced-concrete viaduct 5,106 ft. long ... *392
Erection of, with suspended flexible centering. By Philip Aylett ... *717, (ed) 729
Heavy non-reinforced-concrete arch bridge built to resist ice pressure, Hummelstown, Pa. By M. D. Pratt. ... *103, (lets) 330, 390
Medina, N. Y., Proposed bridge not likely to be built ... (n) 59
Reinforced-concrete arch bridge with separately molded members, San Luis Rey, Cal. ... *460
Rocky River, Ohio, Steel centering. By W. J. Watson ... *722, (ed) 729
Rome, Italy, 328-ft. reinforced-concrete arch bridge ... (n) 795
Spokane, Wash., Centering details of the Monroe St. Bridge. By P. F. Kennedy ... *546
Through reinforced-concrete arch highway bridge near Cincinnati, Ohio. By E. A. Gast ... *196, (ed) 199
Yardley, Pa., Philadelphia & Reading Ry. ... 484
Constantine, Algiers, Masonry arch of 230-ft. span ... (n) 451
Masonry, Historical development of the masonry arch in bridge construction. (French text.) Eng. Lit. Sup. ... 53
Roman aqueduct across the Garde River, near Nimes, France. By L. A. Robb. *309
Steel:
Bridge to be built at Empire on the Panama Canal ... 276, (n) 767
Erecting steel arch roof by derrick with auxiliary boom, 22nd Regiment Armory, New York City ... *61
Kansas City, Mo., Main St. steel arch viaduct over O. K. Creek Valley. By Kenneth Hartley ... *440
Roof of novel design, State fair livestock building, Dallas, Tex. By H. E. Arthur ... *728
Three-hinged steel arches of a German balloon shed ... *25
Architects, Licensing laws of Illinois, Proposed changes to benefit structural engineers ... (let) 362
Architectural competitions, Can some prizes be withheld in a prize competition award? ... (let) 456
Architecture, School building standards. Eng. Lit. Sup. ... 75
Artillery, Krupp balloon guns, Description of. By F. P. Mann ... *452
Asbestos, Chrysotile-asbestos, Occurrences and uses. Eng. Lit. Sup. ... 74
Asphalt:
Methods of testing ... 794
Preservation of railway ties by asphaltic oils, Analyses of crude and refined oils. By F. W. Cherrington ... 122
Trinidad Lake, Extent of supply ... (n) 152
(See also Pavements; Roads.)
Association for Standardizing Paving Specifications, Proceedings of. Eng. Lit. Sup. ... 55
Astronomy, Text-book on practical astronomy for engineers. Eng. Lit. Sup. ... 35
Australia, Sydney-Bourke cut-off of the Western Main Line Ry. of New South Wales ... *379
omatic train stops. (See Signals and Signaling.)
Automobiles. (See Motor vehicles.)

B.

Bacteria:
Dust and its dangers. Eng. Lit. Sup. ... 40
Introduction to bacteriological and enzyme chemistry. Eng. Lit. Sup. ... 53
Researches on water storage and pathogenic germs. Eng. Lit. Sup. ... 35
Results obtained with sedimentation and coagulation with hypochlorite disinfection, Omaha, Neb., water-supply. By F. H. Marshall ... *393
Why absolute bacterial standards for potable water are impracticable. By H. C. H. Shenton ... 666
Ballast and ballasting, Depth of ballast for railway track, Report of Committee of the American Railway Engineering Association ... 412
Balloon sheds:
French military balloon sheds, Three types of ... *166
Take-down type built in Germany ... *25
Balloons. (See Aerial navigation.)
Barges, Reservoir survey from barge. By H. V. Joslin ... *693
Base line measurement. (See Surveys and surveying.)
Beams:
Tests:
Old timber beams, Other tests of old timber ... (lets) 49, 172
Old timber, Strength of, Australia. By W. Pagan ... (let) 390
(See also Plate girders.)
Bearings, Cantilever bridge of the Pittsburgh & Lake Erie R R. at Beaver, Pa., Details ... *89, (ed) 105
Belts and belting:
Emergency rope driven in a hydro-electric plant. By H. R. Lee ... *313
Rope sheave for power transmission weighing 66,750 lbs. ... (n) 769
Berlin, Germany; Street-cleaning efficiency. By Rudolph Hering. 596, (ed) 603
Bitumen. (See Asphalt; Pavements; Roads.)
Blasting:
Accidents. (See Accidents.)
Panama Canal, Economy in the use of dynamite ... (n) 191
(See also Explosives.)
Block signals. (See Signals and signaling.)
Blocks, Large steel six-sheave pulley block ... *22
Blowers, Design of blower for increased efficiency. By A. H. Anderson ... *538
Blue-printing machine, washing and drying. By William, Brown and Earle ... *784
Blue-prints, White-print process and continuous printing machine. C. F. Pease, inventor ... *57
Boiler explosions. (See Accidents.)
Boiler inspection; Federal bureau to inspect locomotive boilers proposed, (n) 180, (ed) 199
Boiler tests:
Acceptance test of a marine boiler for the U. S. Navy; a good performance at high rate of combustion ... *510
Williston irrigation project pumping station plant using lignite fuel. By T. D. Randall and Henry Kreisinger ... *353
Boilers:
Auxiliary oil firing in steam boiler plants. By H. A. Wagner ... 748
Comparative radiation of heat through solid and air-space boiler settings. 568
Electrically heated steam boiler for train heating ... *82
Feed-water regulators, Advantage in maintaining feed-water at constant temperature ... (n) 119
Locomotive:
Development and treatment of locomotive boiler tubes. By F. N. Speller ... *611
Flexible boiler of the Mallet articulated locomotives of the Atchison, Topeka & Santa Fe Ry. ... *480, (ed) 486
Safety appliances for ... 767
Oil-fired boilers, Automatic regulation of oil fuel ... (n) 367
Steam boiler engineering, Results of "researches" by Prof. John T. Nicolson of the University of Manchester, England ... 454
Warships, Tests of boilers for battleships. By H. I. Cone ... 37
Washing dust and smoke from chimney gases, at York, England. By J. B. C. Kershaw ... *255
Bonds:
Irrigation bonds, Security of as an investment. By W. E. Lagerquist ... 563
United States Government 3% bonds; Sale and prices of ... (ed) 789
Boston, Mass.:
Development of rapid transit during the last 12 years ... *100
Electrification of railways before the Massachusetts legislature ... (ed) 485
(See also Electrification of steam railways.)
Population of Massachusetts Metropolitan District ... (n) 276
Bottle-making machines, Description of some in England. By Bernard A. Kupferberg ... 430
Boynton, G. B.; Biography of. Eng. Lit. Sup. ... 79
Brandeis, Louis; Proposal to operate railways more efficiently. (ed) 106, (let) 140
Breakwaters; Steel forms for filling with concrete ... *777
Brick:
Abrasion test of paving brick, New rattler and method ... *334
Brick manufacturing interests convention ... 229
Building construction, Houses of brick. Eng. Lit. Sup. ... 42
Development of the sand-lime brick industry. By Jefferson Middleton. 502
Bridge bearings. (See Bearings.)
Bridge accidents. (See Accidents.)
Bridge construction, Observations on recent bridge construction in America. By H. S. Jacoby ... 598
Bridge design:
Influence of bridge inspection on. By H. S. Jacoby ... 428
Plate girder design. Eng. Lit. Sup. ... 81
Suspension bridge formulas, Credit to New York City Department of Bridges. By F. E. Turneaure. (let) 456
Suspension bridges. (French text) Eng. Lit. Sup. ... 57
Theory and practice of modern framed structures. Eng. Lit. Sup. ... 85
(See also Mechanics; Stresses; Structural details.)
Bridge erection:
Erecting a steel arch roof by derrick with auxiliary boom, 22d Regiment Armory, New York City ... *61
Kentucky River High Bridge, Details of renewal and erection of a 3-span cantilever bridge. By H. M. Starr. *518
Load test of a large sand-jack for lowering bridge trusses, Switzerland ... *26
Pend Oreille River bridge of the Idaho & Washington R. R. ... *46
(See also Arch centering.)
Bridge inspection, Influence on design. By H. S. Jacoby ... 428
Bridge loadings:
Car wheel loads to be investigated. (n) 784
Dallas and Oak Cliff, Texas, Reinforced-concrete viaduct, 5,106 ft. long ... *394
Test train wheel loads for impact tests, Chicago, Milwaukee & St. Paul Ry. By J. H. Prior ... *500
Typical mallet locomotive wheel loads, Western Maryland Ry. ... 104
Wheel loads of electric and interurban railway cars. By F. E. Smith, (let) *455
Bridge renewals:
Kentucky River High Bridge, Details of method of rebuilding a 3-span cantilever bridge. By H. H. Starr. *518
Rowlesburg, W. Va., on the Baltimore & Ohio R. R. By W. H. Boughton *272
Bridges:
Abutments. (See Abutments.)
America, Some observations on recent bridge construction. By H. S. Jacoby ... 598
Bamboo arch highway bridge in Java, Dutch East Indies. By W. G. Bligh ... *195
Bascule street-crossing of an overhead carrier track ... *507
Beaver, Pa.:
Pittsburgh & Lake Erie R. R.; Details of design, Cantilever ... *89, (ed) 105
Full-size eye-bar tests ... 212
Micrometer gagings to determine dead-load stresses ... *352
Breslau, Germany, A suspension bridge with flat cables of riveted plate construction ... *435
Chickahominy River arch bridge, Virginia. By Philip Aylett ... *717, (ed) 729
Bridges:
Cincinnati, Ohio, Through arch concrete highway bridge. By E. A. Gast ... *196, (ed) 199
Constantine, Algiers, Masonry arch for highway, 230-ft. span ... (n) 451
Dallas and Oak Cliff, Texas, Reinforced-concrete viaduct, 5,106 ft. long ... *392
Denver, Colo., 20th and 23d St. viaducts ... *8
Drawbridges:
Object lessons concerning the lack of interlocking signals ... (ed) 633
Portland, Ore., Straight lift span, Hawthorne Ave., over the Willamette River. By W. P. Hardesty. *279
Eel River, Humboldt Co., Cal., seven 180-ft. spans, Reinforced concrete. (n) 356
East River, N. Y., Manhattan, Proposal to apply test loading ... (lets) 517
French Broad River, on the Southern Ry. Reinforced concrete ... (n) 46
Highway, Comparison of two designs of 200-ft. span ... (let) *390
History of bridge engineering. Eng. Lit. Sup. ... 84
Hummelstown, Pa., Heavy concrete bridge built to resist ice pressure, *103, (lets) 330, 390
Illinois Traction System; Concrete standards ... *652
Impact tests on a reinforced-concrete trestle, Chicago, Milwaukee & St. Paul Ry. By J. H. Prior ... *500
Kansas City, Mo., Main St., steel arch viaduct over O. K. Creek valley. By Kenneth Hartley ... *440
Kentucky River High Bridge rebuilt, Details of renewal. By H. H. Starr ... *518
Novelty in construction proposed in bill introduced in the Oklahoma legislature ... (n) 130
Orleans Ry. (France), Short-span bridges of I-beams and concrete. *629
Panama Canal, Steel arch to be built at Empire ... 276. (n) 767
Pend Oreille River, Idaho & Washington R. R., Unusual case of erection ... *46
Portland, Ore., Hawthorne Ave., over the Willamette River, Straight lift span. By W. P. Hardesty. *279
Quebec (New):
Contract soon to be let ... (n) 214
Award of contract on April 4 .. (n) 465
Designs for; Accepted design ... *484
Experts appointed for consultation ... (n) 181
Resignation of Mr. H. E. Vautelet from Board of Engineers ... 271
Tests of nickel-steel details for the Board of Engineers; Tests with special reference to alternating stresses ... *526
Reinforced-concrete:
Specifications for. Eng. Lit. Sup. ... 13
(See also under Arches; and under name of bridge.)
Rocky River, Ohio, 280-ft. concrete arch. By W. T. Watson. *722, (ed) 729
Rome, Italy, 328-ft. reinforced-concrete arch bridge ... (n) 795
Rowlesburg, W. Va., Baltimore & Ohio R. R., New structure to replace old one. By W. H. Boughton ... *272
St. Louis, Mo., Municipal:
Municipal bridge and the railway terminal situation. By E. R. Rombauer ... 101
Progress on ... (n) 769
Substructure, Caissons, Foundation, etc. By S. W. Bowen ... *320
San Luis Rey, Cal., Reinforced-concrete arch bridge, with separately molded members ... *460
Sewickley, Pa., Cantilever spans joined. (n) 677
Southern Ry. concrete girder bridge over French Broad River, N. C. (n) 46
Spokane, Wash., Monroe St. arch bridge, Details of centering for. By P. F. Kennedy ... *546
Suspension bridges:
Breslau, Germany, Flat cables of riveted plate construction ... *435
Failure of bridge in India and its causes. By Sir Bradford Leslie ... 499
Tests, Micrometer gaging of structural parts to measure dead-load stresses. *352
Through arch highway bridge near Cincinnati, Ohio. By E. A. Gast, 196, (ed) 199
Two Medicine River, Montana, Curious wooden bridge designed by Indians. By T. B. Matthews ... (let) *265
Yardley, Pa., Philadelphia & Reading Ry. ... 484
Bronze, Aluminum-bronze test cylinders. By H. C. H. Carpenter and C. A. Edwards ... *376
Brooklyn Engineers' Club, Exhibition of engineering materials ... (ed) 543
Brown, Alexander E.:
Biographical sketch of ... *549
His connection with mechanical handling of coal and ore. By H. McL. Harding ... (let) 610
Brussels Exhibition, 1910: Locomotive exhibits ... 661
Building accidents. (See Accidents.)
Building construction:
Argument for permanent construction. By R. W. Wetherill ... *406, (ed) 419
Brick as building material, Comparative costs of a residence of different materials ... 230
British book on. Eng. Lit. Sup., March 16, 1911 ... 40
Building, bridge and track standards, Illinois Traction system ... *649
Fireproof construction, Latest object lessons concerning fire dangers. (ed) 420
Fire protection precautions for reinforced-concrete buildings ... (n) 70
Reinforced-concrete work in cold weather ... *674
Reinforced-concrete:
"Ransome unit system." By Alexis Saurbrey ... *724, (ed) 729
"Unit system" of separately molded members applied to a large factory building ... *726, (ed) 729
School building standards. By W. T. Mills. Eng. Lit. Sup., May 18, 1911 ... 75
Building construction:
Swinging hand derrick for construction work ... *230
Timber floor construction for reinforced-concrete factory buildings. By F. W. Wilson ... *504
(See also Concrete construction.)
Building laws:
Cleveland, Ohio, Investigation of Henke Building collapse. By Edward Godfrey .. (ed) 105, (let) 108, 117
Lack of engineering staff to enforce city building laws. By A. H. Markwart ... (let) 329
New York City, Responsibility for loss of lives in shirt-waist factory fire. Fire Underwriter's report. Coroner's jury report ... (ed) 387, *396 (ed) 420, 458, 493
Buildings:
Baltimore, Md., Baltimore "News" building, Condition of reinforcement in building being torn down. (ed) 419, *431
Beverly, Mass., United Shoe Machinery Co. By Alexis Saurbrey. *724, (ed) 729
Dallas, Tex., State Fair live-stock building. By H. E. Arthur ... *728
Fire protection of concrete buildings, Recommendations of National Association of Cement Users ... (n) 70
Fort William, Ont., Grain elevator for the Grand Trunk Pacific Ry., Reinforced-concrete bins ... *221
New York City:
Armory of 22d Regiment, Erecting steel arch roof by derrick with auxiliary boom ... *61
Asch Building, Fire in fireproof building causes loss of 150 lives. Details of building .. (ed) 387, *396 420, 458
Bankers Trust Co., Micrometer gagings to determine dead-load stresses ... *352
Singer Building, Reason for imported steel? ... (n) 765
Woolworth Building to be highest in world ... (n) 97
Reinforced-concrete packing house seriously injured by electrolysis. By H. P. Brown ... *684, (ed) 699
St. Louis, Mo., National Lead Co. *726, (ed) 729, Erratum 765
Steel frame; Micrometer gagings of structural parts to measure dead-load stresses ... *352
Washington, D. C., Riding Club building, Floor construction of ... (n) 104
(See also Railway stations; Railway structures.)
Bulkheads:
Light timber construction used at the Key West, Fla., Naval Station. By D. C. Webb ... *451
Steel and concrete dock wall; Renewal of south end of Dock No. 10 in Ashtabula Harbor, Ohio. By Chas. Benham, Jr. ... *592
(See also Sea walls; Retaining walls; Wharves and docks.)

C.

Cable railways, Seattle, Wash., Cable counterweight system for a steep grade electric line ... *282, (ed) 297
Cables, Electric. (See Electric power, Transmission lines.)
Cableways. (See Also Conveyors; Telphers.)
Caissons:
Hauserlake dam, Montana, Caisson cofferdam. By G. A. McKay ... *743
Municipal Bridge, St. Louis, Mo., Substructure and foundations. By S. W. Bowen ... *320
Pennsylvania R. R. bridge at Newark, N. J., Peculiar accident kills 10 men. (n) 151
Pneumatic muck ejector with auxiliary air supply ... *261
Reinforced-concrete, floated into place, Kobe Harbor, Japan ... *647
Subway sections sunk into place as caissons, Pont Mirabeau crossing of the Seine, Paris, France ... *590
Calcium hydrate. (See Lime.)
Canadian Society of Civil Engineers, Annual convention ... 150
Canal locks. (See Canals, Panama.)
Canals:
Chicago drainage canals. (See also Sewage disposal.)
Lake Erie to Ohio River project revived again ... (ed) 762
Lake Superior and Mississippi River, Proposed navigation channel ... (n) 181
Morris Canal, New Jersey, Proposed abandonment of ... (n) 243, (ed) 264
New York State:
Barge:
Guard gate and by-pass gate near Waterford, N. Y. ... *788
Medina arch bridge not likely to be built ... (n) 59
Proceedings of the Barge Canal Terminal Commission. Eng. Lit. Sup. ... 84
Proposal to abolish board of consulting engineers ... (n) 152, (ed) 170
Slow progress in construction ... (ed) 453
Erie, Break east of Rochester, N. Y., May 19 ... (n) 644
Hudson River dam and locks at Troy proposed, Controversy between State and U. S. Government over water power rights ... (n) 583, (ed) 604
Gowanus, Brooklyn, N. Y., Cleaning ... (n) 795
Panama:
American Institute of Mining Engineers visit, Views of members on the work ... (ed) 569, 579
Anti-Panama Canal letter in the New York "Sun" ... (ed) 730
Approval of work by members of the American Society of Civil Engineers 445
Articles on, Selected list from files of Engineering News ... 118
Culebra cut:
Bridge at Empire proposed. 276, (n) 767
Dry-weather slide on Feb. 9 ... 276
Earth-slide near Gatun Locks, March 10 ... (n) 337

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Canals: Panama: Culebra cut:
Earth slides, Record of, Causes, etc. *570
Lining sides, Retaining walls or not? By E. L. Corthell .... (ed) 17, (let) 172
Record for quantity and low cost, for March .... (ed) 569
Report of geologist on slides, and of Board of Engineers on revetment on the sides of cut..(ed) 17, 21
Rock sides to be surfaced with concrete .... (n) 709
Economy in use of dynamite....(n) 191
Fortification of .... (ed) 169
Fortifications for, Appropriation for passed by Congress............ (n) 307
Garbage collection and disposal in Canal Zone .... (n) 27
Gatun Dam:
Construction plant, Power, engineering, organization, etc. By Edward Schildhauer and Ernest E. Lee. †183, (ed) 200, (let) 332
Earth handling by pipe line. By G. W. Rice .... (let) *636
Gatun Locks:
Concrete work up to Dec. 31, 1910. (n) 88
Construction plant, Power, engineering, organization, etc. By Edward Schildhauer and Ernest E. Lee. †183, (ed) 200, (let) 332
Construction plant, Credit for the design of. By W. Gerig.....(let) 332
Foundations for, Use of concrete piles .... (n) 28
Geology of Culebra cut section, Report of Board of Engineers on revetment of sides of cut....(ed) 17, 21
Improvements in machinery for handling earth and rock as a result of experience at Panama 56
Lock equalization problem, Report on. (n) 307
Lock gates, First shipment of materials .... (n) 119
Miraflores locks, Much used concrete forms 602
Primitive sugar mill near canal works (let) 637
Progress notes (n) 88, 214, 307, 482, 492, 613, 742
Progress of work to date............ *425
Record excavations in the Central Division 395
Sea level plan, Statements of visiting mining engineers regarding lock and sea-level types of canal...(ed) 569
Steel arch bridge to be built at Empire ....276, (ed) 767
Tehuantepec Ry. of Mexico as a competitor in through traffic. By I. W. Sylvester.........(ed) 77, (let) 455
Proposed canal between Boston Harbor and Narragansett Bay.....(n) 629
Suez, Traffic through in 1870 and 1910. (n) 449
Car couplers, Discussion of............ 793
Car heating, Electrically heated steam boiler for electric locomotives for train heating *82
Car scales. (See Track scales.)
Car lifting machine, Used in Belgium. (n) 735
Car ventilation, Experiments and studies in, Board of Supervising Engineers, Chicago Traction. By W. A. Evans. 280
Car wheels:
Axle loads of railway cars.........(n) 784
Curious cases examples of wear...... (let) *490, (n) 545
Design of cast-iron car wheels, Formula for thickness of web or plate. (n) 262
Master Car Builders' Association Convention 794
Cars:
Dump:
Clark quick-dumping steel ore cars, More data on, Tests of. By J. S. Martin .... (let) *266, 362
Contractors' car with steep dumping angle and inside journal bearings..*512
Quick-dumping steel cars for iron ore, Duluth & Iron Range R. R. More data on. By Frederic Schaefer. (let) *266
Dumping chute for attachment to coal cars *765
Electric:
Fenders, Tests of fenders and wheel guards, St. Louis, Mo.....(n) 277
Storage-battery car on the West Orange Branch of the Erie R. R..(n) 512
Wheel loads of, Table. By F. E. Smith .... (let) *455
Freight; Increased braking power for. By J. P. Kelly............ 779
Mail cars, Cost of operating to the Government and railways.....(let) 421
Master Car Builders' Association Convention 793
Motor cars, Buffalo, Rochester & Pittsburg R. R., Gasoline electric car...*551
Prevention of street-car overcrowding in several European cities............ 381
Railway ambulance cars on Swiss Government Railways .... (n) 151
Resistance of freight trains, Relation to average car weight. Eng. Lit. Sup. 13
Steel:
Clark quick-dumping ore car, More data on. By J. S. Martin.(let) *266, 362
Mail cars for the Pennsylvania R. R. (n) 319
Quick-dumping cars for ore on the Duluth & Iron Range R. R. More data on. By Frederic Schaefer.(let) *266
Carbon tetrachloride as a fire extinguisher. 326
Castings. (See Bronze; Copper; Iron and Steel, etc.)
Cattle chutes, Standard, Illinois Traction System *651
Cattle guards, Standards, Illinois Traction System *652
Cement:
Alkali-proof cement, Advertisement of company .... (ed) 263
Chemistry and testing of cement. Eng. Lit. Sup. 37
Hydrated lime, Manufacture and properties. By R. K. Meade............ *554
Invention of Portland cement....(ed) 515 (lets) 515, 574

Cement:
Nature of, Recent Investigations into, at the Geophysical Laboratory of the Carnegie Institution. By E. S. Shepard ....*350, (ed) 357
Production of Portland cement in the United States in 1910..........(n) 119
Recent studies as to the nature of.(ed) 357
Setting of cement mortar under compressed air .... (n) 561
Used in a new cementation process for shaft-sinking in wet ground....(n) 664
Cement machinery:
Edison Giant Rolls, Patent sustained by U. S. Court decision............ 769
Moodie "Selector" for the Separation of fine material *191
Tube mill in which grinding is done by steel rods *58
Cement mills, Motor drives in cement mill of the Allentown Portland Cement Co. .... (n) 583
Cement testing:
Chemistry and testing of cement. Eng. Lit. Sup. 37
Discrepancies in. By F. C. Young............ 786
Mechanical cement-shaper sieve....(n) 779
Census:
Total cost of field work of the U. S. Census of 1910.........(n) 272
(See also Population statistics.)
Chemistry:
American Institute of Chemical Engineers, Convention 794
Analysis of paint and painting materials. Eng. Lit. Sup 43
Bituminous road compounds. Test by scale paraffine determination. By A. W. Dow and F. P. Smith..... *680
Cement and testing of. Eng. Lit. Sup. 37
Elementary chemistry for coal-mining students. Eng. Lit. Sup 58
Explosives, Nature and characteristic components of permissible explosives. By Clarence Hall............ 785
Introduction to bacteriological and enzyme chemistry. Eng. Lit. Sup. 53
Iron and steel analyses. Eng. Lit. Sup. 67
Laboratories of the U. S. Bureau of Mines. By J. K. Clement............ 63
Municipal chemistry, Lectures at College of the City of New York, Eng. Lit. Sup. 22
Recent investigations into the nature of cement at the Geophysical Laboratory, Carnegie Institution. By E. S. Shepherd.........*350, (ed) 357
Use of chlorates in commercial explosives. By A. L. Jones............ 3
(See also Water analysis; Sewage analysis, etc.)
Chicago, Ill.:
Electrification of railways in, Committee appointed to study situation.(n) 382
Locomotive smoke and coal consumption in, Smoke prevention. By P. B. Bird ....(n) 27, 262, (ed) 263
Municipal harbor project.........(n) 769
Proposed subway system, Report of B. J. Arnold. Proposed shuttle system. By B. J. Arnold. *226, (ed) 489, (let) 489
Water waste detection. T. C. Phillips 260
(See also Sewage disposal.)
Chimneys, Failure of brick chimney at Whippany, N. J. ....(n) 151
China, Technical education in.....(let) 108
Chlorates, Use of in the manufacture of commercial explosives. By A. L. Jones 3
Chutes, Dumping chute for unloading coal, etc. *765
Cinders, Fire dangers in cinder fill railway embankments. By J. M. Bischoff .... (let) 545
Cities:
London statistics......Eng. Lit. Sup. 42
Statistics of cities of the United States having population of 30,000 or over.........Eng. Lit. Sup. 38
City planning:
England, Conference to be held by the Institution of Municipal and County Engineers 278
Exhibition at City Hall, Philadelphia, Pa. .... (n) 613
Garden cities and garden city suburbs in England .... (n) 296
Interest in systematic work, Example of Seattle, Wash..........(ed) 17
National conference at Philadelphia, (ed) 633, 639
National Housing Association conference 708
Proceedings of the Second National Conference on......Eng. Lit. Sup. 42
Rochester, N. Y., Plan for, Eng. Lit. Sup. 40
Seattle, Wash., Civic or Municipal Plans Commission ....16, (ed) 17
Washington, D. C.. Honors paid to engineer who planned city, Pierre Charles L'Enfant 676
Civil service examinations:
Civil Engineer, Philippine service......757
Civil Engineer Student, Department of Agriculture 788
Limitations of in determining the efficiency of the candidate, with particular reference to licensing engineers .... (ed) 454
Municipal positions, City Engineer on. (ed) 697
New York State examination problem, What time is required for solution? By C. E. Harris...........(let) *545
Utter futility of any oral examination. By E. T. Abbott............ (let) 545
Clark, Myron C., Biographical sketch of 213
Cleveland, Ohio, Grade crossing elimination. Laws on, Construction work. By Robert Hoffman............ 126
Clutches, Automobile cone clutches, Formulas for use in designing. (n) 140
Coal:
Calorific tests of............ 794
Consumption of and smoke caused by, in Chicago, Ill. By P. B. Bird, 262, (ed) 263
Low-grade coal deposits in the United States and their prospective use.. 648
Production of in Indiana in 1909..(n) 111
Production in Pennsylvania in 1909.. 197
Soapy water for spraying coal dust in mines .... (n) 376
Specifications for the purchase of coal by the City of Chicago......(lets) 108

Coal:
Spontaneous combustion of, Investigations at the University of Illinois. 534
Spontaneous combustion of. Eng. Lit. Sup. 82
Coal-mining. (See Mines and mining.)
Coal and ore handling:
Dumping chute for attachment to cars and wagons *765
Electrically operated coaling station, Elgin, Joliet & Eastern Ry............ *676
Mechanical handling of coal and ore: Work of Alexander E. Brown. By H. McL. Harding.............(let) 610
(See also Conveyors; Railway structures.)
Coaling stations. (See Railway structures.)
Cofferdams:
Caisson cofferdam. Hauserlake dam, Montana. By G. A. McKay....... *743
Charles River, Boston, Mass., Arresting the flow of a large tidal river. By J. A. Holmes.........*284, 362
Partial failure of steel sheet-pile cofferdam at Chicago, Ill.......(n) 59
Proposed method of placing tie-bars in a steel sheet-pile cofferdam. By F. J. MacIsaac.........(let) *332
Raising the battleship "Maine":
Army engineer plans for, Design of cofferdams for very deep water. (lets) 50, 51, *108
Estimates of the cost............(n) 277
Failure of closing piles in two cylinders .... (n) 583
Progress of work....*143, *612, (n) 465
Pumping out .... (n) 709, (n) 769
Colorado, State Engineer's report, Eng. Lit Sup. 77
Columns:
Square footing slab of reinforced-concrete, What is the bending moment .... (lets) *329, 455
Strength of piers or columns of different materials. By J. E. Howard..*161
Tests:
Nickel-steel compression members, Tests of models for the Quebec Bridge Board of Engineers............ *526
Reinforced-concrete columns with various kinds of transverse reinforcement *228
Steel built up columns, Pennsylvania R. R. and University of Illinois, (ed) 328, 324
Compressed air:
Profitable refinements in contractor's compressed air plants. By Frank Richards *472
Setting of cement mortar in.......(n) 561
(See Air compressors.)
Concrete:
Beach shells as aggregate. By W. Cunningham .... (let) 669
Breaking up concrete with hydraulic jacks .... (n) 645
Causes of failure of monolithic concrete construction; Reports of American Railway Engineering Association.. 412
Destructor-clinker concrete sidewalk slabs at Nottingham, England............ 46
Effect of alkali water on, Cement Co.'s advertisement .... (ed) 263
Effect of alkali on. Reinforced-concrete pipe line in alkali soil. By Z. N. Vaughn 787
Electrical resistance of plain concrete. (n) 696
Electrolysis:
Damage to a reinforced-concrete structure by stray currents. By A. S. Cushman 523
Serious injury to a reinforced-concrete packing house by electrolysis. By H. P. Brown.......*684, (ed) 699
Washington University experiments..*687
Face finish, Floors, Method for dust prevention. By Albert Moyer..(n) 180
Fence posts, Report of Committee of the American Railway Engineering Association 412
Flow of in pipes:
Conveying and depositing concrete by gravity chutes. By F. L. Burr............ (let) 50
Depositing concrete by gravity chutes for building construction 207
Frozen, Detection of. By C. A. P. Turner .... (n) 301
Laboratory at Purdue University. Concrete tables and tanks. By W. K. Hatt *241
Pavements. (See Pavements.)
Protection coating of, for a small tank tower *7
Reinforced-concrete:
Columns, Tests of columns with various kinds of transverse reinforcement *228
Construction:
Arch bridge with separately molded members, San Luis Rey, Cal......*460
Cold weather work on buildings. By G. C. Newton *674
Electric lamp poles for St. Marys Falls Canal, Mich. By L. C. Sabin *256
Frame of concrete with timber floors, Factory building construction. By F. W. Wilson *504
German practice. (German text.) Eng. Lit. Sup. 58
Pile and slab trestle, Chicago, Indiana & Southern Ry. *123
"Ransome unit system." By Alexis Caurbrey ....*724, (ed) 729
Razing a seven-story building in Baltimore, Md., Condition of reinforcement, Details of..(ed) 419, *431
Report of commission on the Henke Building collapse at Cleveland, Ohio ....(ed) 105, (let) 108, 117, (ed) 231, (let) 236, *238, (n) 269 (let) 329
Short-span bridges of I-beams and concrete, Orleans Ry. (France)............ *629
Standpipe at the United States Naval Station, Key West, Fla............ *492
"Unit system" of separately molded members applied to a large factory building ....*726, (ed) 729 erratum 765
Definition of.................(ed) 697
Failures. (See Building accidents.)
Oil reservoir partial failure at San Luis Obispo, Cal.......*310, (lets) *490

Concrete: Reinforced concrete:
Reinforcement:
Behavior of iron imbedded in concrete for 58 years............(n) 363
Condition of in the Baltimore "News" building, Baltimore, Md. (ed) 419, *431
Electrolysis. (See under Concrete, Electrolysis.)
Lewen system for poles or piles. Corrugated plates tied with wire. *292
Rails used for, Concrete extension the Sweetwater Dam, Cal. By J. D. Schuyler *369
Rusting of steel in concrete, Investigating of in England....(n) 418
Tests of columns with various kinds of transverse reinforcement *228
Wood as a material ....(n) 307
Setting of cement mortar under compressed air ....(n) 561
Slabs:
Basis of design for flat slabs. By A. R. Lord ....(let) 50
Flat slab floor tests. By A. R. Lord. (let) 50
Tests:
Beach shells as aggregate. By W. Cunningham ....(let) 669
Beam tests of small specimens proposed in Germany. German text. Eng. Lit. Sup. 82
Electric lamp poles, St. Mary's Falls Canal, Mich. By L. C. Sabin.... *256
Washington University experiments on the electrolytic disintegration of reinforced concrete............ *687
(See also above under Beams, Columns, Slabs, etc.)
Tests of voids in crusher-run stone. By J. R. Taft 26
Trap rock screenings, Tests of. By W. S. Lozier 700
Waterproofing:
American Railway Engineering Association committee report 372
La Salle St. tunnel Chicago, Ill..... 55
Zinc tailing as aggregate for......(n) 777
Concrete construction:
Cause of failure of monolithic construction; Report of American Railway Engineering Association.. 412
Cold weather work on reinforced-concrete buildings. By G. C. Newton. *674
Cracks in reinforced-concrete buildings no sign of poor construction. By A. R. Lord ....(let) 50
Grain elevator, Fort William, Ont., Grand Trunk Pacific Ry............ *221
La Salle St. tunnel under the Chicago River, Chicago, Ill............. *52
Panama Canal, Gatun locks and dam, Construction plan and methods used. By Edward Schildhauer and Ernest E. Lee. †183, (ed) 200, (let) 332
Popular handbook for cement and concrete users.........Eng. Lit. Sup. 43
Reference books for concrete workers. Eng. Lit. Sup. 79
Separately-molded members:
Arch bridge, San Luis Rey, Cal..... *460
Development of systems........(ed) 729
Pile and slab trestle of reinforced-concrete, Chicago, Indiana & Southern Ry. *123
"Ransome unit system." By Alexis Saurbrey ....*724, (ed) 729
Short-span bridges, Orleans Ry. (France) *629
"Unit system" in a large factory building..*726, (ed) 729, erratum 765
Steel forms for filling with concrete for breakwaters, etc. *777
Through reinforced-concrete arch highway bridge near Cincinnati, Ohio. By E. A. Gast.........*196, (ed) 199
Tunnel lining of the Buffalo, N. Y., water-works tunnel. By C. H. Hollingsworth *158
Wood reinforcement tried in England. (n) 307
Concrete forms:
Electric lamp poles, Reinforced concrete, St. Mary's Falls Canal, Mich., By L. C. Sabin *256
Jack and yoke for supporting and raising forms on circular concrete bins, Fort William, Ont., grain elevator. *222
Much used form, Miraflores locks, Panama Canal 602
Reinforced-concrete pressure pipe for irrigation purposes, steel forms. By H. D. Newell *208
Steel forms for filling with concrete for breakwaters, etc. *777
Steel forms, Gatun locks, Panama Canal. By Edward Schildhauer and E. E. Lee .... †186
Steel forms used in Buffalo, N. Y., water-works tunnel construction. By C. H. Hollingsworth.......... *158
Concrete mixing and handling:
Cold weather building work. By G. C. Newton *674
Construction plant for the Gatun locks and dam of the Panama Canal. By Edward Schildhauer and E. E. Lee. †183, (ed) 200, (let) 332
Conveying and depositing concrete by gravity chutes. By F. L. Burr.... (let) 50
Depositing concrete by gravity chutes for building construction, Los Angeles, Cal. 207
Spraying machine for Panama Canal work ....(n) 700
Concrete residences, Houses and cottages. Eng. Lit. Sup. 43
Concrete tables, Cement testing laboratory at Purdue University. By W. K. Hatt *241
Condensers:
Experimental determination of the rate of heat transmission in surface condensers. By G. A. Orrok *162
Thermostat for the control of condensing water. By B. Viola *446
Conduits:
Flow of water in: Kutter formula values for rock-cut channels. By R. Mugnier ....(lets) 488, 619
Underground telephone trunk lines of the American Telephone & Telegraph Co. *615
Connecticut Society of Civil Engineers, Annual meeting 225

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Conservation of natural resources:
Conservation congresses, Program for an engineering section....12, (ed) 18
(n) 110
Conservation of water...Eng. Lit. Sup. 27
Low-grade coal deposits in the United States and their prospective use.. 648
National water resources..............
Eng. Lit. Sup. 44
New York State, Department of Conservation proposed ....(n) 611
Oregon conservation commission report.
Eng. Lit. Sup. 8
Contracts and contractors:
Akron, Ohio, suit against the Akron Water-Works Co., to comply with contract 277
Argentina harbor improvements, Contracts let to English firms.....(n) 769
Contractor's claim on old material removed as a result of construction. By E. McCullough...........(let) 50
Court decision as to the enforcement of the time penalty in engineering contracts ....602, (ed) 603
Honesty of contractors, a specific case of peculiar engineering ethics. By C. A. P. Turner.................. 291
Making the contractor do the engineer's work. Bidding on certain kinds of contracts ....(ed) 453
Need of professional cooperation among engineers. By A. C. Koenig....... 690
(See also Legal decisions.)
Contractor's machinery, German handbook of............Eng. Lit. Sup. 13
Conveyors:
Bascule street-crossing of an overhead carrier track *507
Concrete handling with gravity chutes. By F. L. Burr............(let) 50, 297
Freight handling installations for rivers subject to great variations in level. By G. C. Scherer..........*539
Mechanical handling of freight, baggage and mail matters *463
Steamer equipped with coal and ore discharging conveyors............(n) 643
Stone handling plant of the Tomkins Cove Stone Co., Tomkins Cove, N. Y. ....*29, (ed) 48
Wharf conveyor system and electrically operated grain elevator, East Boston, Mass. *417
(See also Telphers.)
Copper:
Opening of the Alaska mines.......(n) 403
Practice of copper smelting..........
Eng. Lit. Sup. 82
Production of United States in 1910.(n) 119
Corporations, Addressing letters to, Directions for ....(let) 637
Cost data:
Abutments of concrete, plain and reinforced, for steel highway bridges. By H. E. Bilger *190
Concrete breakwaters and piers.......*777
Construction plant for the Gatun locks and dam at the Panama Canal. By Edward Schildhauer and Ernest E. Lee ....*183, (ed) 200
Core drilling with Calyx drill. By H. C. Kittredge ....(let) 330
Electric lamp poles of reinforced concrete. By L. C. Sabin................ 257
Electric power for the Massachusetts State House ....(n) 619
Los Angeles aqueduct, Tunnel 10-A. By C. H. Richards 748
Motor trucks for construction work and haulage purposes 750
Operating costs and qualitative results of slow sand and mechanical filters, Baltimore, Md. By S. T. Powell *532
Reinforced-concrete pressure pipe for irrigation purposes, Methods of construction. By H. D. Newell....*208
Steam shovel work on the Cumberland-Connellsville extension of the Western Maryland Ry. By B. M. Langhead ....(let) *608
Steel arch centering, 280-ft. concrete arch. By W. J. Watson.........*722
Steel interurban railway ties. By E. C. Anderson ....(let) *545
Street-cleaning in Berlin, Germany. By Rudolph Hering ....596, (ed) 603
Telephone service, Seattle, Wash....... 652
Water and sewage filtration at Camp Perry, Ohio. By R. W. Pratt....... 758
Cost of living, Gold production and future prices..........Eng. Lit. Sup. 62
Cotton seed products, Growth of the industry ....(n) 283
Crane hooks, Self-closing safety hook, Norden patent *565
Cranes:
Destruction of a 300-ft. gantry crane by dynamite. By J. C. Pinney, Jr..*438
Electric crane design and construction.
Eng. Lit. Sup. 86
Largest cantilever crane in the world installed in Japan ....(n) 394
Cuba, Iron-ore deposits, Moa district. By J. S. Cox......................... 705
Culverts, Standard concrete culverts of the Illinois Traction System......*652
Current meters:
Measuring the flow of water in large pipe lines with a form of current meter. By R. M. Hosea...........
*642, (let) 732
(See also River discharge and velocity.)
Curves:
Locomotive truck swing, Approximate and exact formulas...(lets) *578, *700
Oiling locomotive tire flanges to overcome resistance on curves. By O. Stucki *507
Street section crown curves, Cross-sections of car-track streets. By J. G. Clark ....(let) *359
Table of deflection angles for varying radii and chords. By J. C. Locke.
(let) *488
(See also Railway Location, Curves.)

D.

Dams:
Arch dam, Sweetwater, Cal., Reinforced-concrete extension to. By J. D. Schuyler *369
Austin, Tex., History of.Eng. Lit. Sup. 83
Azischos, Rangeley Lake region of Maine, Buttressed concrete, with logway. By S. A. Moulton.........
*288 (ed) 297
Dams:
Charles River, Arresting the flow of a large tidal river, Details of shut-off dam. By J. A. Holmes....*284, 362
Chicago drainage canal, Emergency butterfly dam at Lockport, Court decision as to the enforcement of the time penalty on the contract..
602, (ed) 603
Failures of, Compilation of with causes, State Engineer's Report, Colorado ....Eng. Lit. Sup. 77
Flow of water over dams, Discharge coefficients for. By G. S. Williams.
*38, (ed) 47
Foundations:
Porous foundations, Best types of dams, barrages and weirs for......
erratum 52, (lets) 108
Porous foundations with previous floors, Types of weir construction. By W. G. Bligh...................*444
Gatun. (See Canals; Panama.)
Genesee River, N. Y., Proposed storage reservoir for flood prevention and amelioration of low-water conditions. By A. H. Perkins.*316, (ed) 327
Hauserlake, Montana, Difficult foundation work. By G. A. McKay.......*743
Lahonton Dam, Truckee-Carson Project, U. S. Reclamation Service.....(n) 675
Lake Erie, Proposed dam for regulating level of lake, Report of International Waterways Commission... 129
Morris earth dam of the Waterbury, Conn., water supply extension.....*342
New York Barge Canal, Emergency dam near Waterford, N. Y.......*778
Oakland, Cal., Central reservoir of the People's Water Co., Earth dam. By C. H. Park and G. S. Jacobs.....*15
Roosevelt dam, Salt River Irrigation Project, Arizona, to be formally opened ....(n) 243
Siphon spillways in Europe, advantages and difficulties of the siphon spillway. By Adolph Ludin.......*467
Sweetwater, Cal., Extension of, Historical sketch, Reinforced-concrete addition to curved masonry. By J. D. Schuyler *369
Tansil dam, Pecos Valley, N. M., Disintegration of concrete, Cement Co.'s advertisement ....(ed) 263
Troy, N. Y., Project held up pending decision of Barge Canal Board....
(n) 583, (ed) 604
United States Reclamation Service, Report of Board of Army Engineers..
(ed) 137, 146
Depreciation and cost analysis. (See Public service corporations; Shops and factories; Water-works valuations.)
Derricks:
Derrick with auxiliary boom used for erecting steel arch roof, 22d Regiment Armory, New York City.....*61
Derrick with inclined mast supported by a cruciform sub-surface foundation. By Eric Swensson..........*130
Swinging hand derrick for building construction work *230
Descriptive geometry. (See Drawing and drawings.)
Dictionaries, English-Spanish.........
Eng. Lit. Sup. 83
Ditching machines. (See Excavation.)
Docks. (See Dry docks; Wharves and docks.)
Drainage:
East St. Louis, Ill., project. By T. N. Jacob 132
Louisville, Ky., Land drainage project. By Paul Hansen.................. 42
Minnesota, State drainage work.......
Eng. Lit. Sup. 37
Reclamation drainage in North Dakota, Procedure to secure a cooperative drainage system. By A. B. McDaniel *374
Tile drainage for reclaiming wet lands. By C. G. Elliott............ 269
Drainage areas:
Minnesota, Variability of run-off of Minnesota streams during the low-water season of 1910. By R. Follansbee *536
Percolation, evaporation and run-off in relation to rainfall. By W. P. Mason 75
Drawing and drawings:
Backbone of perspective. Eng. Lit. Sup. 30
Cross-section of a weld, Best way to show. By C. F. Gailor.......(let) *574
Designing spur and bevel gears, Recommendations for. By G. A. Bisset.
*630, 669
Elements of descriptive geometry......
Eng. Lit. Sup. 87
Engineering descriptive geometry.....
Eng. Lit. Sup. 42
Erasing ink on tracing cloth, Suggestion for ....(n) 237
Improved parallel straight-edge for drawing boards *98
Interpolating contours, Handy method for. By R. F. Rhodes........(let) *329
Mechanical drawing, Plumber's book on.......................Eng. Lit. Sup. 12
Trimetric cross-section paper. By Arthur Schultz *404
White-print process and continuous printing machine, C. F. Pease, inventor *57
(See also Blue prints.)
Drawing Instruments:
Adjustable triangle for draftsman's use...................*167, erratum 203
Handy apparatus for interpolating contours. By R. F. Rhodes..(let) *329
Improved parallel straight-edge for drawing boards *98
Dredges:
Excavating machinery for ditching and trenching. By E. E. R. Tratman ....*215, erratum 269
Fairbanks dry-land dredge.............*319
Gold dredging industry in various fields. By Chas. Janin 95
Silt removal in intake channel for the Imperial Valley, Cal................ 11
Drills and drilling:
Borehole 7,347 ft. deep in Silesia..(n) 590
Compressed air, Theory and computations, transmission, etc.........
Eng. Lit. Sup. 7
Drills and drilling:
Core drilling:
Cost of, Calyx drill. By H. C. Kittredge ....(let) 330
Hudson tunnel of the Catskill aqueduct of the water supply of New York City. By A. D. Flinn.......*339
Drilling 24-in. holes under water for dock wall construction, Ashtabula Harbor, Ohio. By Chas. Benham, Jr. *592
Fast shaft sinking record on the Catskill aqueduct ....(n) 464
Invention of the Ingersoll drill and Cameron pump. By W. L. Saunders 277
Rock drills, Their design, construction and use.......Eng. Lit. Sup. 2
Stope drill competition in the Transvaal, South Africa, Results of. By R. N. Kotze 479
Traction rock drill for 5-in. holes 50 ft. deep, C. H. Locher, inventor...*690
Well-drilling methods ..Eng. Lit. Sup. 75
Drop forging, die making, etc.,
Eng. Lit. Sup. 88
Drying machinery and practice,
Eng. Lit. Sup. *42
Dudley, Dr. Charles B., Life and work of,
Eng. Lit. Sup. 84
Dust explosions. (See Accidents.)
Dynamite. (See Explosives.)
Dynamiting outrages, Arrest of suspects,
(ed) 513

E

Earth, Relations of isostasy to geodesy, geophysics and geology. By J. F. Hayford *461
Earth pressure:
Earth pressures as affecting the design of structures. (French text.)
Eng. Lit. Sup. 10
Tables for determinating earth pressure on retaining walls. By W. E. Weston *756
Earthquakes, Mexico, June 7.........(n) 741
Earth slides, Panama Canal. (See Canals, Panama.)
Earthwork:
Excavating machinery for ditching and trenching. By E. E. R. Tratman ....*215, erratum 269
Improvements in machinery for handling earth and rock as a result of experience at Panama.............. 56
Jamaica "over head" method and the Panama "pipe line" method of handling earth. By G. W. Rice,
(let) *636
New types of earth excavating machines, the Jacobs, Monahan and Fairbanks *318
Record in levee building, Colorado River 505
Traction-engine drag-line excavator made by the Avery Co..............*413
(See also Dredges; Excavation; Embankments; Steam shovels; etc.)
Education:
Engineering education at the Imperial Pei Yang University in China.
(lets) 108
Engineering school graduate; His strength and his weakness; Address before the Congress of Technology. By H. P. Talbot........................ 469
Factors in the success of the Massachusetts Institute of Technology. By R. C. Maclaurin.................. 491
Higher education, Some conditions affecting. By W. D. Taylor,
559, (ed) 569, (lets) 668, 764
Individualism and collectivism,
Eng. Lit. Sup. 25
Industrial schools in Wisconsin...(n) 706
Meeting emergencies in engineering work ....(ed) 19
Polytechnic High School to be built in San Francisco, Cal. ....(n) 143
Wider use of the school plant,
Eng. Lit. Sup. 84
Efficiency engineering:
Data on street-cleaning efficiency in Berlin, Germany. By Rudolph Hering ....596, (ed) 603
"Efficiency engineers" and scientific management ....(ed) 358, (let) 790
Not synonymous with Taylor system of scientific management. By G. F. Miles ....(let) 636
Principles of scientific management,
Eng. Lit. Sup. 70
Railway operation in Pennsylvania under new train crew law.......(ed) 789
Social philosophy and the Taylor System, Will the ultimate result be beneficial? By W. H. Herschel,
(let) 577
Ejectors. (See Pumps and pumping.)
Electric generators:
Continuous current machine design,
Eng. Lit. Sup. 26
Engine-driven generators with flywheel power storage to carry peak loads 464
Electric lamps:
English arc lamps; Descriptions of,
Eng. Lit. Sup. 53
Federal suit again 35 incandescent lamp concerns 336
Reinforced-concrete poles for, St. Marys Canal, Mich. By L. C. Sabin.*256
Electric lighting:
Missouri Pacific Ry. double-hump yard at Dupo, Ill. 394
National Electric Light Association Convention 702
Rates:
Excessive rates through the operation of a holding company, North Adams, Mass. 547
New York City companies voluntarily reduce rates ....(n) 613
(See also under Electric power.)
Elecric motors:
Continuous current machine design,
Eng. Lit. Sup. 26
Portland cement mill motor driven.(n) 583
Single-phase, Papers at annual convention of the National Electric Light Association 703
Theory and construction of,
Eng. Lit. Sup. 11
Electric power:
Central power plant of a pumping-irrigation project at Portales, N. Mexico. By R. P. Woods...........*192
Electric power:
Cost of, as developed at the Massachusetts State House ....(n) 619
Financial possibilities of hydro-electric developments in the Central West. By P. M. Lincoln.......................*692
Hydro-electric practice..Eng. Lit. Sup. 74
Pacific Coast Power Co., Two 20,400-HP. turbines ....(n) 59
Papers at annual convention of the National Electric Light Association 702
Rates:
Excessive rates through the operation of a holding company, North Adams, Mass. 547
National Electric Light Association papers 702
New York City companies voluntarily reduce rates 613
Steam-electric development for long-distance transmission ....(n) 367
Transformers, American Institute of Electrical Engineers, Papers at convention 242
Transmission lines:
American Insitute of Electrical Engineers, Papers at convention....... 242
Field construction of a 110,000-volt line *503
High tension submarine cables under Harlem River, N. Y..............(n) 341
High-tension underground cable tests,
(n) 143
Three-phase transmission,
Eng. Lit Sup. 61
Unified electric systems covering large territories. By W. B. Jackson.... 442
Electric railway accidents. (See Accidents.)
Electric railways:
Boston, Mass., Extension of rapid transit lines during the past 12 years.*100
Buffalo, N. Y., street railways to be appraised by B. J. Arnold.....(n) 260
Cleveland, Ohio, Operation under 3-ct. fares ....(n) 767
England, London, Brighton and South Coast Ry. By H. R. Wilson.......*679
Financial condition of the American street railway industry............ 388
Illinois Traction System, Building bridge and track standards..........*649
Lackawanna & Wyoming Valley Rapid Transit Co., Westinghouse Electric & Manufacturing Co.'s Investments in ....(ed) 761
Logical basis for valuations of interurban street railways. By C. G. Young 141
New York City. (See Elevated railways; Subways.)
Pittsburg, Pa., Reports of B. J. Arnold on the improvement of passenger transportation. By B. J. Arnold,
(ed) 169, *176, *203
Prevention of street-car overcrowding in several European cities.......... 381
Providence, R. I., street railway conditions to be investigated by B. J. Arnold ....(n) 260
St. Louis, Mo., Street car fenders and wheel guards tests 277
Seattle, Wash., Cable counterweight system for a steep grade.*282, (ed) 297
Trackless trolley lines in Bremen, Germany ....(n) 225
Transportation problem.Eng. Lit. Sup. 38
United Rys., Ore., Cornelius Gap tunnel. By W. P. Hardesty................*782
Washington Water Power Co., Block signals with automatic stops on interurban lines *620
Westinghouse Electric & Manufacturing Co.'s investments,Lessons from,
(ed) 761
Electric steam generator for heating trains *82
Electric storage batteries. (See Storage batteries.)
Electric wires. (See Electric power, Transmission lines.)
Electric wiring, National Fire Protection Association, New specifications for rubber covered wires 522
Electrical apparatus, for lighting, heating, etc., German text.
Eng. Lit. Sup. 37
Electrical engineering. (See Engineering.)
Electrical industries:
Patent agreement between General Electric and Westinghouse Companies not to be renewed.......(n) 584
Westinghouse Electric & Manufacturing Co.'s annual report.........(ed) 761
Electricity:
Electricians' operating and testing manual ....Eng. Lit. Sup. 23
Elements of electricity for technical students ....Eng. Lit. Sup. 26
Resistance of plain concrete.........(n) 696
Electrification of steam railways:
Boston, Mass.:
Metropolitan district, Report of Metropolitan Improvement Board,
(ed) 137, 144
Proposed compulsory electrification before the Massachusetts legislature ....(ed) 485, (n) 677
Boston & Maine R. R., Hoosac tunnel.*694
Chicago, Ill.:
Committee appointed to study situation ....(n) 382
Proposed electrification of terminals. By P. B. Bird..(n) 27, 262, (ed) 263
City and suburban electric trains,
Eng. Lit. Sup. 67
Costs of, Should railways be compelled to electrify terminals to prevent smoke nuisance? ....(ed) 263
Philadelphia, Pa., Pennsylvania R. R. Broad St. terminal, Proposed.(n) 641
Electrolysis. (See Concrete, Electrolysis; Water pipe.)
Elevated railways:
Boston, Mass., Extensions and additions to the Boston Elevated Ry. during the last 12 years.............*100
Chicago, Ill., Raising an elevated railway on 40th Ave., Chicago & Western Indiana Ry..................(n) 523
New York City:
Proposed water-front railway for freight handling; a subway recommended ....(n) 481

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Elevated railways: New York City:
Traffic in 1910 ....(n) 243
West Side freight traffic problem, Proposed elevated railway solution of *447
Philadelphia, Pa., Suspension elevated railway proposed ....(n) 95
Elevator accidents. (See Accidents; Accident statistics.)
Elevators, ; grain. (See Grain elevators.)
Embankments, Fire dangers in cinder filled railway embankment. By J. M. Bischoff ....(let) 545
Endicott, Mordecai T., Biographical sketch. By A. C. Cunningham....†134
Engineering:
Agricultural engineering:
American Society of Agricultural Engineers, Annual meeting. By C. O. Reed.................. 24
Need of more agricultural engineers. By T. H. Means..............(let) 390
Argument for permanent construction. By R. W. Wetherill.....*406, (ed) 419
British encyclopedia of municipal and sanitary engineering. Eng. Lit. Sup. 59
Civil engineering:
American civil engineers' pocket-book..Eng. Lit. Sup., (ed) 1, 19, (let) 33
Civil engineers' pocket-book, name and author wanted.......(lets) 2, 18
Making civil engineers' pocketbooks. Eng. Lit. Sup., (let) 33
Conservation congresses, Program for an engineering section.12, (ed) 18, 110
Electrical engineering, Principles of, Eng. Lit. Sup. 14
Ethics of:
Giving of engineering advice gratis, (ed) 231
Honesty of contractors, a specific case of peculiar engineering ethics. By C. A. P. Turner 291
Need of professional cooperation. By A. C. Koenig 690
Professional code and schedule of fees for consulting engineers..... 795
Unprofessional conduct, Extracts from personal letters to the editor..(let) 107
Handbooks, Suggested improvements in, Eng. Lit. Sup. (let) 18
How the work of engineering research and experimental investigation benefits the public..............(ed) 387
Mechanical engineering:
Pocket-book of.........Eng. Lit. Sup. 31
German dictionary of..Eng. Lit. Sup. 88
Pittsburg meeting of the American Society of Mechanical Engineers... 707
Meeting emergencies in Engineering work ....(ed) 19
Mistakes of an unsuccessful engineer, (let) 51
Public relations of the engineer. By M. N. Baker.................. 346
Engineering competitions, Can some prizes be withheld in a prize competition award? ....456, (let) 456
Engineering literature:
Annual index of current literature. Eng. Lit. Sup. 56
Good engineering literature. Eng. Lit. Sup. 81
Guide to technical writing. Eng. Lit. Sup. 6
How may an engineer make the best use of current literature, Indexing. Eng. Lit. Sup. (lets) 1, 18
How to prepare a paper for publication ....Eng. Lit. Sup. 28
Index of, Engineering abstracts, English publication. Eng. Lit. Sup.... 24
Putting a price on publications of technical institutions, Eng. Lit. Sup., (ed) 49
Uniformity and economy in the physical makeup of..Eng. Lit. Sup. (let) 49
Engineering News:
Advertising rates and the proposed bill to increase postage rates, (eds) 199, 232, (let) 332
Answering inquiries in regard to engineering practice ....(ed) 231
Chicago office expansion..........(ed) 453
Editorials in, Defense of.........(ed) 790
Formula for safe load on piles, Diagram for. By A. S. Milinowski, (let)*139
Information for the personal columns, (ed) 486
Volume 65, Largest yet ....(ed) 789
Engineering schools:
Central Technical College, London, England ....(n) 741
Columbia University ....(n) 243
Cornell University ....(n) 179
England, Municipal School of Technology, Manchester; Journal of. Eng. Lit. Sup. 14
Graduate of; His strength and his weakness. By H. P. Talbot...... 469
Harvard University, Bureau of Municipal Research to be established, (n) 493
Higher education, Some conditions affecting. By W. D. Taylor, 559, (ed) 569, (lets) 668, 764
Imperial Pei Yang University: Technical education in China....(lets) 108
Lehigh University, Tests of the strength of mine supports....(n) 179
Massachusetts Institute of Technology:
Congress of technology to be held, (n) 397
Notes ....(n) 27
Science Comspectus. Quarterly Magazine ....Eng. Lit. Sup. 18
Some factors in the success of. By R. C. Maclaurin 491
Surveying camp ....(n) 677
New York University: Notes......(n) 243
Oregon Agricultural College, Engineering show given..................(n) 464
Pratt Institute, Notes.............(n) 677
Rensselaer Polytechnic Institute, Alumni reunion ....(n) 118
Rensselaer Polytechnic Institute, Commencement notes ....(n) 464
San Francisco, Cal., Polytechnic High School to be built..............(n) 143
University of Cincinnati, New buildings ....(n) 307
University of Illinois, Notes......(n) 493
University of Michigan:
Annual alumni dinner..(n) 118, (n) 179
Overloaded power plant..........(n) 677
Engineering schools:
University of Nebraska, Notes: (n) 58, (n) 179
University of Utah, Notes ....(n) 367
University of Wisconsin, Notes ....(n) 522
Engineering societies:
Exhibition of engineering materials at ....(ed) 543
List of members with portraits and biographical sketches, Swedish Engineers' Society of Chicago, Ill., (ed) 48
Suggestions to engineers presenting papers at conventions........(ed) 357
Engineering Society of Wisconsin, Annual meeting 335
Engineers' Society of Western Pennsylvania, Program for an engineering section at future conservation congresses ....12, (ed) 18, 110
Engineers:
Agricultural engineers and openings for. By T. H. Means........(let) 390
American civil engineers' pocket-book revised ....Eng. Lit. Sup. 19
Arguments for permanent construction. By R. W. Wetherill ....*406, (ed) 419
Army:
Increase in the size of the Corps of Engineers, U. S. A.......323, (ed) 327
Proposed method of increasing corps of Engineers ....(n) 243
Review of the work of the U. S. Reclamation Service by consulting board,(ed) 137, 146, (let) 265, (ed) 265
Biographies of, Why so few? By E. H. McCelland..Eng. Lit. Sup. (let) 1
Civil engineers' pocket-book, a new one announced. Eng. Lit. Sup. (ed) 1, (let) 33
Compensation of, Question of, Schedule of charges adopted by St. Louis engineers. By Barnett Braslow, (let) 515, 515, (ed) 516
Compensation for consulting engineers; Schedule of fees 795
Contractors compelled to do the engineer's work in bidding on certain kinds of contracts ....(ed) 453
County engineers in Illinois, Law establishing incompetent men as engineers ....(ed) 604
"Efficiency engineers" and scientific management.......(ed) 358, (let) 790
Engineering school graduate; His strength and his weakness; Address before the Congress of Technology. By H. P. Talbot......... 469
English engineer's impressions of America. By W. F. Goodrich..... 348
English practice in filling municipal positions by appointment......(ed) 453
Ethics. (See Engineering, Ethics of.)
Fireproof building construction, Need of the engineer to make buildings safe ....(ed) 420
Gayner and Greene released from Federal prison, March 24..........(n) 397
L'Enfant, Pierre Charles, Honors to the engineer who planned the City of Washington, D. C.............. 676
Licensing of:
Alabama, Proposed law............. 455
American Institute of Consulting Engineers opposes licensing. By E. W. Stern ....(let) 269
American Society of Civil Engineers' model law, Objections to, (ed) 106, 115, (lets) 139, 202, 235, 236, 299, 300
American Society of Mechanical Engineers, Opposition to.........(n) 214
Arguments against licensing. By H. M. Bowers..................(let) 360
Further views of. By D. S. Newton and W. Newbrough....(lets) 299, 300
Ignorant land surveyors and their errors: Where a licensing law is needed. By J. A. Guissinger, (let) 515
Illinois, Effect of architect license law on structural engineers, Proposed changes ....(let) 362
Kansas, Action of Kansas Engineering Society 175
Local factors in licensing laws.(ed) 357
Medical profession and licensing of. By A. H. Ferguson.............. 300
Medical profession and the weaknesses of the examination system. (ed) 485
Negative arguments in favor of. By Isaac Menline ....(let) 332
New York:
Arguments against any license. By G. B. Francis..............(let) 361
Arguments against the McGrath bill. By F. J. Sprague.....(let) 420
Bills to license introduced in Legislature ....(n) 213
Examinations and their limitations, (ed) 454
Examinations; Utter futility of any oral examination. By E. T. Abbott ....(let) 545
Hearing at Albany on.........(n) 307
New York "Times" editorial on the McGrath bill.............(n) 419
No legislation likely at present session of legislature..........(n) 549
Objections to McGrath bill. By R. S. Buck ....(let) 361
Public hearing on the McGrath bill ....(n) 367
Technical League arguments in behalf of the McGrath bill. By W. G. Elliot ....(ed) 570, (let) 574
Various bills before the legislature, Criticism of.......(eds) 231, 268, (lets) 268, 269, (ed) 298
Ohio:
Action of the Ohio Engineering Society 179
Bill introduced in senate.......(n) 243
Washington state law proposed, Western engineer's view of. By Joseph Jacobs ....(let) 360
Meeting emergencies in engineering work ....(ed) 19
Mistakes of an unsuccessful engineer ....(let) 51
Municipal positions, City Engineer on civil service principles and practise ....(ed) 697
Need of professional cooperation among engineers. By A. C. Koenig........ 690
Opportunity for engineers in highway work. By A. N. Johnson..... 132
Engineers:
Photography for the engineer. By S. L. Jeffery. *407, (lets) 575, 699, 700, 792
Prize competitions, Can some prizes be withheld in a prize competition award? ....456, (let) 456
Public relations of the engineer. By M. N. Baker 346
Reports of municipal engineers and officials, Some literary gems, Eng. Lit. Sup., (lets) 1, 18
State Boards of Health and engineering departments of..........(ed) 387
Suggestions to engineers preparing papers for society conventions.(ed) 357
Votes of confidence for a municipal engineer. Mr. R. P. Miller.490, (let) 517
Work for engineers in connection with public service commissions...(ed) 514
England:
British government by experts, politicians and lords.....Eng. Lit. Sup. 54
Practice of appointing engineers to municipal positions ....(ed) 453
Entropy:
Physical meaning of. By A. L. Menzin ....(n) 52
Physical significance of.Eng. Lit. Sup. 3
Ericsson, John, Life of...Eng. Lit. Sup. 57
Ethics, Guide to social ethics, reading and allied subjects...Eng. Lit. Sup. 76
Ethics of Engineering profession. (See Engineering, Ethics.)
Examination, Limitations of, Particular reference to the proposed licensing of engineers.........(ed) 455
Excavation:
Earth excavating machinery for ditching and trenching. By E. E. R. Tratman ....*215, erratum 269
Improvements in machinery for handling earth and rock as a result of experience at Panama............ 56
New types of earth excavating machines, the Jacobs, Monahan and Fairbanks *310
Traction-engine excavator made by the Avery Co. *413
(See also Dredges; Steam Shovels.)
Exhibitions:
City Planning Exhibition at Philadelphia, Pa. ....(n) 613
Engineering materials, Brooklyn Engineers' Club exhibit............(ed) 543
Explosions. (See Accidents.)
Explosives:
Accidents from explosives on railways By W. B. Dunn.................. 277
Nature and characteristic components of "permissible" explosives. By Clarence Hall 785
Use of chlorates in commercial explosives. By A. L. Jones......... 3
Express companies' investigation by Interstate Commerce Commission, Profits of companies.....(ed) 105, 300
Express rates, Reduction of "boat and rail" rates between New York City and New England points......(n) 367
Eyebars, Full-size tests for Beaver, Pa., bridge of the Pittsburgh & Lake Erie R. R. 212

F.

Fanning, J. T., note regarding his life. By E. T. Abbott.............(let) 333
Fans. (See Blowers.)
Fence posts, Concrete, Reports of Committee of the American Railway Engineering Association 412
Fenders, Street cars, St. Louis, Mo., tests ....(n) 277
Ferries, Largest car-ferry steamer in the world "Ann Arbor No. 5"...(n) 541
Fire engines, automobile fire engine test in New York City............(n) 367
Fire prevention:
Address of the President at the annual convention of the National Fire Protection Association. By W. H. Merrill 664
America's fire loss and how it can be reduced. By W. H. Merrill....... 180
Latest object lessons concerning fire dangers ....(ed) 421
National Fire Protection Association new specifications for rubber covered electric wires 522
National Fire Protection Association convention, New York City........ 673
Purpose and work of the Underwriters' Laboratories. By W. H. Merrill... 386
Waste from fires in the United States. Work of the Government. By W. L. Fisher 673
Fireproofing:
Fire resistance of floors, English tests. Eng. Lit. Sup. 84
Loss of 145 lives in fire in a fireproof building in New York City......... (ed) 387, *396, (ed) 420
Test of reinforced-concrete building in Minneapolis, Minn. ....(n) 28
Fire protection:
Boston, Mass., High-pressure water supply system advised by National Board of Fire Underwriters....(n) 503
Carbon tetrachloride as a fire extinguisher 323
Concrete buildings, Fixtures and precautionary details recommended by National Association of Cement Users ....(n) 70
Determination of a reasonable return for public fire hydrant service. By Metcalf, Kuichling and Hawley.... 737
Good progress in securing the adoption of standard hose couplings, etc.(n) 582
New York City, Coney Island high-pressure system.....(ed) 730, (n) 742
Tests of roof coverings, Reports of American Railway Engineering Association 413
Flood prevention:
Colorado River break into the Imperial Valley, Work of U. S. Government in repairing break......... *99
Genesee River, N. Y., Proposed water storage for flood prevention and amelioration of low-water conditions. By A. H. Perkins.*316, (ed) 327
Floor beams, Denver, Colo., 20th and 23d St. viaducts *8
Floors:
Collapse of a tile-and-concrete floor, New York City apartment house.. 336, (n) 769
Concrete:
Dust prevention, Method proposed. By Albert Moyer ....(n) 180
Tests a reinforced-concrete flat slab floor. By A. R. Lord.........(let) 50
Dwelling house floor collapses, Erie, Pa., Feb. 28 ....(n) 307
Fire resistance tests of, England..... Eng. Lit. Sup. 84
Harper Memorial Library, Chicago, Ill., Failure of seven floors.......*433
Overloaded floor collapses in Brooklyn, N. Y., March 25 ....(n) 397
Riding hall floor at Washington, D. C. ....(n) 104
Timber floor construction for reinforced-concrete factory buildings. By F. W. Wilson *504
Forests and forestry:
Adirondacks, New York State, Water storage on public lands authorized. (n) 622
Appalachian forest reserve appropriation passed by Congress.......... (n) 307, 326, (ed) 327
Care of trees in the lawn, street and park ....Eng. Lit. Sup. 36
Forest policy.............Eng. Lit. Sup. 89
Influence of forests on climate and floods; Denudation and erosion in the Southern Appalachian region.. Eng. Lit. Sup. 4
Pennsylvania R. R., Operations on a large scale ....(n) 590
Principles of handling woodlands..... Eng. Lit. Sup. 78
Shade-trees in towns and cities..... Eng. Lit. Sup. 36
Utilization of California eucalyptus. Eng. Lit. Sup. 14
Foundations:
Bridge foundations:
Concrete piles in drilled holes, New York Central R. R., New York City terminal *165
Failure of abutment causes collapse of bridge over the Little Wabash River, Illinois. By C. M. Daily.... *212, (let) 390
Failure of bridge pier foundations and the methods adopted for reconstruction 403
St. Louis, Mo., Municipal Bridge substructure and foundations for. By S. W. Bowen *320
Caisson. (See Caissons.)
Cementation of wet grounds for shaft-sinking and tunnel work.........(n) 664
Elevated water tank of 200,000 gal. capacity *62
Foundations on ground that has been frozen and thawed 140
Hauserlake dam, Montana, Caisson cofferdam. By G. A. McKay.......*743
Multiple-spool hoist for foundation work in Chicago, Ill. *133
Porous foundations; Dams, barrages and weirs for.......(n) 52, (lets) 108
Porous foundations with pervious floors, Types of, weir construction for. By W. G. Bligh..............*444
Pressure allowable on hardpan. By C. M. Lawrence ....(let) 52
Pressure on sheet piling, Experiments. 716
Quicksand, New method of grouting in. (n) 251
Reinforced-concrete square footing slab What is the bending moment?..... (lets) *329, 455
Safe load on piles. (See Piles.)
Steel forms for filling with concrete for breakwaters, etc. *777
Wharf foundations Kobe Harbor, Japan; Reinforced-concrete hollow caissons floated into place *647
Foundry work:
Text-book of elementary foundry practice ....Eng. Lit. Sup. 12
Pipe molding machine and continuous pipe foundry. James B. Clow & Sons ....*711, (ed) 729
Franchises:
Los Angeles, Cal., Southern Pacific Ry. asking a 250-year franchise....(ed) 358
Municipal franchises.....Eng. Lit. Sup. 69
Paris subway system with special reference to franchise terms and conditions. By R. H. Whitten.70, (ed) 77
Frauds:
Savannah Harbor, Gayner and Greene released from federal prison...(n) 297
Schemes offering positions in exchange for investments ....(ed) 570
Freight handling:
Chicago, Ill., Tunnel system of railways, Statistics of ....(n) 27
Engineering and economic results of the commercial motor vehicle.(ed) 762
Installations for rivers subject to great variations in level.........*539, (let) 669
Kobe Harbor, Japan, Improvement of port facilities. By H. McL. Harding 261
Long-distance hauls by automobile trucks ....(n) 493, (n) 775
Mechanical handling equipment at the St. Louis station of the Missouri, Kansas, & Texas Ry.................*771
Mechanical handling of freight, baggage and mail matters.............*463
Mechanical handling of package freight; Inbound and outbound terminals, transfer stations......*566, 611
Motor trucks for construction work and haulage purposes...*750, (ed) 762
New York City:
Development of New York's water terminals. By Calvin Tomkins.. (let) 457
Proposed water-front elevated railway scheme dead ....(n) 434
West Side freight traffic problem; Subway and elevated railway plans for solution *417
Storage battery trucks for handling package freight in railway freight houses *564, *760
Telepherage baggage-handling system, England ....(n) 644
Unloading pig-iron with magnets...(n) 553
Fritch, Louis Charlton, Biographical sketch of. By F. R. Coates........†136

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Frogs:
Device giving a continuous rail for both tracks, C., B. & Q. Ry........*344
Manganese-steel frog made of rolled rails, Erie R. R..........*345
Fuels:
Automatic regulation of fuel oil for oil-fired boilers ....(n) 367
Oil as fuel for smelter in Nevada..(n) 25
Oil-fuel producer-gas power plant, 1,000-HP. capacity 591
Tests:
Lignite, Tests of a boiler plant using lignite fuel, Williston, N. D. By D. T. Randall and Henry Kreisinger *353
Work of the U. S. Bureau of Mines. By J. K. Clement 63
Furnaces, Washing dust and smoke from chimney gases at York, England. By J. B. C. Kershaw..........*255

G.

Galvanizing methods, Test for galvanized iron to replace the copper-sulphate method 593
Garbage and refuse disposal:
American plants, Impressions of an English engineer. By W. F. Goodrich 348
British type destructors under construction United States, List of..(n) 323
Cincinnati Reduction Co. plant destroyed by fire, Feb. 28..........(n) 307
Columbus, Ohio:
First reduction works built in an American city, Capacity of plant.. 109
Municipal collection and disposal of ashes and rubbish recommended... (n) 677
Gas as fuel for cremating dead animals and incinerating garbage. By A. N. Miller ....(let) 140
Healthy homes and summer resorts... Eng. Lit. Sup. 41
Panama Canal Zone ....(n) 27
Garbage reduction, Columbus, Ohio, First reduction works built in an American city, Capacity of plant. (n) 109
Gas:
Cheapest gas on record, City of Widnes, England ....(n) 749
Excessive rates for gas and electricity through the operation of a holding corporation, North Adams (Mass.) Gas Co. 547
Gas as fuel for incinerating dead animals and garbage. By A. N. Miller ....(let) 140
Natural gas production in U. S. in 1909 and 1910 151
Gas explosions. (See Accidents.)
Gas holders, Collapse in Hamburg, Germany, causes of ....(n) 632
Gas producers:
Experimental coal fuel engine, Provided with generator..........(n) 553
Oil-fuel producer-gas power plant, 1,000-HP. capacity *591
Gas and oil engines:
Advantage of long-stroke gasoline engines for commercial vehicles. By E. A. Myers 541
Diesel engines for seagoing vessels, construction and operation, etc. By J. T. Milton ....623, (ed) 634
Diesel engines for ship propulsion, European developments 499
Diesel engines, 2,000-HP. horizontal, Prussia ....(n) 716
Experimental coal fuel engine, England 553
Gas-engine vessels being constructed in Europe ....(n) 367
Locomotives for industrial railways.. *20
Pioneer inventions and use of gas engines in Europe and America. (eds) 634, 790, (let) 790
Power plant of a pumping-irrigation project at Portales, N. Mex., Gas engines. By R. P. Woods..........*192
Selden automobile patent declared invalid by U. S. Circuit Court of Appeals..........(n) 59, (ed) 79
Tests of engines for use in naval tenders. By H. I. Cone.......... 36
Gas and oil pumps, Direct-acting explosion pumps, The Humphrey.(n) 59
Gears and gearing:
Approximate formula for use in design of cone clutches for automobiles. 140
Automobile transmission efficiency.... 37
Recommended jobbing practice in designing, drafting and cutting spur and bevel gears. By G. A. Bisset. *630, erratum 669
Speed-reducing gears, Multi-stage 1,000-HP. De Laval steam turbine.*428
General Association of Engineers of America, Information about it wanted ....(n) 669
Geodesy:
Relations of isostasy to geodesy, geophysics and geology. By J. F. Hayford *461
(See also Surveys and surveying.)
Geology:
Geology for engineers. Eng. Lit. Sup. 60
New York City (Catskill) aqueduct; Studies in. Eng. Lit. Sup.......... 70
Relations of isostasy to geodesy, geophysics and geology. By J. F. Hayford *461
Vermont, Report of State Geologist. Eng. Lit. Sup.......... 79
Geometry, Problem in. Stone cutting in the Pyramids of Egypt. By D. W. Lockwood ....(let) 667
Gettysburg, Battle of....Eng. Lit. Sup. 69
Gold mining. (See Mines and mining.)
Gold production and future prices. Eng. Lit. Sup. 62
Gold production in the Transvaal March, 1911 ....(n) 709
Government:
British government by experts, politicians and lords....Eng. Lit. Sup. 54
Cost of our national government, Eng. Lit. Sup. 76
Methods of, in New York State, (ed) 731, (let) 764
Government ownership:
England, Completion of government ownership of telephone industry... 237
Government ownership:
Public ownership of telephones in Europe ....Eng. Lit. Sup. 72
Grade crossings:
Elimination of:
Cleveland, Ohio, Laws regarding, Construction work. By Robert Hoffman 126
Massachusetts during 20 years..(n) 119
St. Louis, Mo., Opposition by railways to elimination. By E. R. Rombauer 102
Grain elevators:
East Boston, Mass., Electrically operated elevator and wharf conveyor system *417
Ft. William, Ont.:
Grand Trunk Pacific Ry., Reinforced-concrete bins *221
Partial failure of tile and concrete bin *76
Great Lakes:
Commerce of, Decrease in.......(n) 793
Lake Erie, Proposed regulation of the level, International Waterways Commission report 129
Relation of water-works intakes to the purity of supply. Comparative costs of long and short intakes.385, (let) 490
Shipping and commerce of, Eng. Lit. Sup. 89
Survey of the Northern and Northwestern lakes ......Eng. Lit. Sup. 74
Grinding machinery, Tube mill where grinding is done by steel rods......*58
Guns:
Effect of vibration and load on steel, Experience with naval guns. By P. R. Alger.......... 497
(See Artillery; Warships.)
Gyroscope, Theory of applications of the gyroscope, German text, Eng. Lit. Sup. 28
Gyrostatic compass, German text. Eng. Lit. Sup. 85

H.

Harbors:
Argentina, Large contracts for harbor construction to English firms..(n) 769
Chicago, Ill., Municipal harbor improvement project ....(n) 769
Construction and improvement of. German text. Eng. Lit. Sup. 82
Duluth-Superior, Commerce of in 1910 (n) 210
Havana, Removing wreck of the "Maine." (See Warships.)
Kobe, Japan:
Improvement to port facilities. By H. Mc. L. Harding.......... 261
Reinforced-concrete hollow caissons for wharf foundations, Floated into place *647
Montauk Point, L. I., Proposed steamship terminals ....(ed) 263
New York:
Development of the city's water terminals. By Calvin Tomkins..(let) 457
Proposal to extend Manhattan Island four miles down New York Bay. By T. K. Thomson..........(let) *576
Proposed extensions of pier-head lines to accommodate monster new ships. Decision of War Department (eds) 47, 297, 300, 366, (let) 457
Philadelphia, Improvement of the port facilities of ....198, (n) 727
Water-front and harbor improvements discussed at City Planning Conference 640
Hardpan, Allowable pressure on. By C. M. Lawrence ....(let) 52
Havana, Cuba, Police administration of public vehicles ....(let) 390
Heating and ventilation:
Handbook for heating and ventilating engineers. Eng. Lit. Sup. 8
Management of central heating plants. German text. Eng. Lit. Sup. 83
Ozonized air for London, Eng., subways (n) 770
Ventilation of railway cars, Report of Board of Supervising Engineers, Chicago Traction. By W. A. Evans. 280
Ventilating. (See also Blowers; Subways; Tunnels.)
Highway Commission of New York, Proposal to abolish.....(n) 152, (ed) 170
Highways. (See Roads.)
Hoisting apparatus:
Large steel six-sheave pulley block... *22
Multiple-spool hoist for foundation work *133
(See also Derricks.)
Hook; Self-closing safety crane hook, Norden patent *565
Hunt, Charles Wallace, Biographical sketch of. By F. R. Hutton.......... 416
Hydrants, Determination of a reasonable return for public hydrant service. By Metcalf, Kuichling and Hawley. 737
Hydrated lime. (See Lime.)
Hydraulics:
Determination of stream flow during the frozen season. By C. R. Adams 124
Flow of water over dams, Discharge coefficients for. By G. S. Williams *38, (ed) 47
French text on. Eng. Lit. Sup.......... 88
Irrigation-lateral construction, Elementary principles of. By F. W. Hanna 96
Kennedy's laws of silting. (let) 701, (ed) 701
Kutter formula values for rock-cut channels..........(lets) 488, 610, 701
Measuring the flow of water in large pipe lines with a form of current meter. By R. M. Hosea.*642, (let) 732
Weir tests at Cornell University..(n) 564
Hydroplane motor boats, Remarkable speed record of Sir John I. Thornycroft's "Maple Leaf III"..........(n) 523

I.

Ice, Determination of stream flow during the frozen season. By C. R. Adams 124
Idaho Society of Engineers, Annual convention. By S. D. Clinton.......... 319
Illinois Society of Engineers and Surveyors, Annual convention 149
Illinois Water-Supply Association, Annual meeting 273
Imhoff tank. (See Sewage purification.)
Impact tests on bridges, Reinforced-concrete trestle on the Chicago, Milwaukee & St. Paul Ry. By J. H. Prior *500
Indexes:
Engineering abstracts, English publication. Eng. Lit. Sup.......... 24
Engineering index annual for 1910. Eng. Lit. Sup.......... 56
Signal literature index. Eng. Lit. Sup. 77
Indexing, Current engineering literature. Eng. Lit. Sup..........(lets) 1, 18
India:
Irrigation in the Land of Five Waters, the Punjab, India. By W. G. Bligh *589, (ed) 603
Notes on three irrigation projects in the Punjab.........*585, (ed) 603, erratum 669, 701, (let) 701
Indiana Engineering Society, Annual convention 81
Indiana Sanitary and Water Supply Association, Annual meeting 210
Industrial organization:
Principles of industrial management. Eng. Lit. Sup.......... 55
Principles of scientific management. Eng. Lit. Sup..........70, (let) 636
Scientific management and "efficiency engineers" ....(ed) 358, (let) 790
Scientific management and the railways. Eng. Lit. Sup.......... 55
Insurance:
Pennsylvania R. R. relief funds department ....(n) 180
Workingmen's insurance in European countries. Eng. Lit. Sup.......... 27
Workman's insurance and compensation systems in Europe. Eng. Lit. Sup. 44
Intakes. (See Water-works intakes.)
International Hygiene Exhibition, United States not represented.......(ed) 665
International Railway Congress, Bulletin, January, 1911. Eng. Lit. Sup. 22
International Waterways Commission, Proposed regulation of the level of Lake Erie report 129
Interstate Commerce Commission:
Report for 1909-10. Eng. Lit. Sup.... 73
(See also under Railways; Railway accident statistics; Public service corporations; Signals and signaling.)
Inventions and inventors:
Federal suit against 35 incandescent electric lamp concerns.......... 336
Ingersoll drill and Cameron pump. By W. L. Saunders 277
Machine for structural engineering. (let) 732
Multiples system of telephony patent given to public by Major Squier. (n) 152
Newspaper account of $17,500,000 concrete railway tie..........(ed) 48
Pessimistic views of. Eng. Lit. Sup... 54
Why is Europe in advance of America in pioneer inventions?...(eds) 634, 790, (let) 790
(See also Patent law.)
Investments:
Economics of real estate improvement. Eng. Lit. Sup.......... 69
Financial possibilities of hydro-electric developments in the Central West. By R. M. Lincoln.......... 692
Irrigation bonds as a secure investment. By W. E. Lagerquist.......... 563
United States Government Bonds..(ed) 789
Westinghouse Electric & Manufacturing Co., Annual report, Street railway investments ....(ed) 761
Iron and steel:
Armor plate, Simpson weld..........(n) 459
Brittleness caused by corrosion......(n) 775
Cast-iron stair treads surfaced with alundun ....(n) 691, erratum 732
Chemical analyses of. Eng. Lit. Sup... 67
Corrosion:
Behavior of iron imbedded in concrete for 58 years..........(n) 363
Best kind of pipe for salt ground. (lets) 203, 331, *516
Cause of internal corrosion of hot-water pipes...*347, (ed) 358, (lets) 516, 517, 734
Concrete protection coating for a small tank tower.......... *7
Durability of welded steel pipe.......... 347
(ed) 358, (lets) 516, 517
Electrolysis of concrete reinforcement. (See Concrete.)
Reinforcing steel in a concrete building being destroyed in Baltimore, Md. ....(ed) 419, *431
Rusting of iron. Paint protection for. By A. H. Sabin....551, (lets) 636
Rusting of steel in concrete, English investigation and report on.....(n) 418
Curious examples of wear from car wheels and brake shoes.......(let) *490 (n) 545
Electrolytic iron, Investigations of the University of Illinois. By C. F. Burgess 356
Iron-ore deposits in Cuba. By J. S. Cox 705
Oxhydric process of cutting and welding metal *508
Pipe, Comparative merits of iron and steel pipe. By Allen Hazen.......... 736
Tests, Gripping power of rivet steel... *41
Tests for galvanized iron to replace the copper-sulphate method 593
Unloading pig-iron with magnets...(n) 553
Welding, Theory, practice, apparatus and tests. By R. N. Hart. Eng. Lit. Sup. 10
Wrought-iron versus steel, Discussion of the lasting qualities of water-tank hoops. By H. M. Howe..(ed) 485 (let) 637
Irrigation:
Bonds, Security of as an investment. By W. E. Lagerquist.......... 563
Excavating machinery for ditching and trenching. By E. E. R. Tratman. *215, erratum 269
Imperial Valley, Cal., Shortage of Water ....(n) 11
India:
Land of the Five Waters, the Punjab. By W. G. Bligh.*589, (ed) 603
Notes on three irrigation projects in the Punjab. By A. B. Segur.......*585 (ed) 603, 669, 701, (lets) 701
Irrigation:
Irrigation-lateral construction, Elementary principles of. By F. W. Hanna 96
Kennedy's laws of silting. By C. A. Mees 701
Notes on irrigation works. Eng. Lit. Sup. 28
Persian wheels for pumping in India, Wanted, a substitute. By A. M. Talati ....(let) 515
Pumping-irrigation project with a central power plant, Portales, N. Mex. By R. P. Woods..........*192
Reinforced-concrete pipe line in alkali soil. By Z. N. Vaughn.......... 787
Review of the work of the U. S. Reclamation Service.......(ed) 137, 146 (ed) 265, (let) 265
Salton Sink, Southern California, U. S. Government work of repairing break in Colorado River..........*99
Truckee-Carson project, U. S. Reclamation Service, Lahonton dam..(n) 675
Water for various Reclamation Service projects from heavy snowfalls. (n) 337

J.

Jacks:
Breaking concrete by hydraulic jacks. (n) 645
Jack and yoke for supporting and raising the forms for circular concrete bins, Fort William, Ont., grain elevator *223
Load test of a large sand-jack..........*26
Jackson, Dugald C., Biographical sketch of. By Henry H. Norris..........†135
Japan, Railways of, History, etc. By J. F. Paige.......... 776

K.

Kansas Engineering Society, Annual Meeting 175
Kites, French text on. Eng. Lit. Sup.... 83
Kobe, Japan, Improvement of port facilities. Hollow concrete caissons for pier foundations. By H. McL. Harding 261, *647

L.

Labor:
Arrest of dynamite outrage suspects, McNamara and McManigal......(ed) 513 (n) 523
Efficiency data on street cleaning in Berlin, Germany. By Rudolph Hering ....596, (ed) 603
Efficiency engineering and the Taylor system of scientific management not synonymous. By G. F. Miles. (let) 636
Homestead: Households of a mill town. Eng. Lit. Sup.......... 81
Industry and progress, Problems surrounding industrial life. Eng. Lit. Sup. 79
Motion study, A method for increasing the efficiency of the workman. Eng. Lit. Sup. 35
Paris subway system, Labor clauses in franchise. By R. H. Whitten.......... 74
Premium plan of paying for labor, Practical details of. By Clinton Alvord *92
Principles of scientific management. Eng. Lit. Sup.......... 70
Relief funds department of the Pennsylvania R. R...........(n) 180
Scientific management and "efficiency engineers" ....(ed) 358, (let) 790
Social philosophy and the Taylor system—Will the ultimate result of the Taylor system be beneficial?. By W. H. Herschel..........(let) 577
Steel worker. Eng. Lit. Sup.......... 81
Train crew law passed in Pennsylvania. (ed) 789
Workingmen's insurance in European countries. Eng. Lit. Sup.......... 27
Workmen's compulsory compensation law declared unconstitutional by New York State Supreme Court.(n) 434
Workmen's insurance and compensation in Europe. Eng. Lit. Sup.......... 44
Laboratories:
Bacteriological laboratory for Warren County, N. Y. ....(n) 307
Chemical laboratories of the U. S. Bureau of Mines. By J. K. Clement 63
Municipal testing laboratory proposed in New York City.......521, (n) 677
Purdue University cement testing laboratory, Concrete tables and tanks. By W. K. Hatt..........*241
Purpose and work of the Underwriters' Laboratories. By W. H. Merrill... 386
Lake Erie, Proposed regulation of the level of, from report of International Waterways Commission.......... 129
Lamps, Arts-crafts lamps and how to make them. Eng. Lit. Sup.......... 38
Land reclamation:
East St. Louis, Ill., Levee and drainage project. By T. N. Jacob..... 132
Louisville, Ky., Land drainage project. By Paul Hansen 42
North Dakota, Drainage work, Procedure to secure co-operative drainage. By A. B. McDaniel..........*374
Work of the U. S. Reclamation Service reviewed by Army Engineer Board ....(ed) 137, 146
(See also Drainage; Irrigation.)
Landscape gardening:
Greening pictorial system. Eng. Lit. Sup. 60
How to lay out a garden. Eng. Lit. Sup. 84
Law:
Control of waters crossing state boundaries. By C. F. Randolph.... (ed) 665, 670, (let) 700
Delays in punishing those responsible for building accidents..........(ed) 730
"Efficiency engineering" as applied to the legal profession.(ed) 106, (let) 140
Engineering Law, New book on. Eng. Lit. Sup. 51
Illinois law establishing incompetent men as County Surveyors.....(ed) 604
Kansas highway law classifying country roads ....(n) 535
Legal difficulties in using Ten Mile River for an emergency water-supply for New York City....(ed) 634

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Law:
- Licensing laws for engineers. (See Engineers.)
- Pennsylvania law requiring certain numbers of employees for train crews (ed) 789
- Principles of a uniform city planning code 641
- Property rights of owner and contractor in old material removed in construction. By Ernest McCullough. (let) 50

Lawyers' fees, extract from letter. (let) 140
Lead, Production of in United States for 1910 (n) 16
Leadite for calking joints in water mains 735
L'Enfant, Pierre Charles, Monument to, at Washington, D. C. 676

Legal decisions:
- Court decision in Illinois as to the enforcement of the time penalty in engineering contracts 602, (ed) 603
- Free transportation of public officials, Decision by New Jersey Public Utilities Commission (n) 769
- Patent decision on the Edison Giant Rolls (n) 769
- Right of Catasauqua, Pa., to build and operate water-works affirmed by State Supreme Court (n) 523
- Right to take underground water out of New Jersey into New York denied (n) 397
- Selden automobile patent declared invalid by U. S. Circuit Court of Appeals (n) 59, (ed) 79
- Standard Oil Co., Dissolution decision of the U. S. Supreme Court (eds) 603, 633
- Warren patent on bituminous macadam sustained by the U. S. Circuit Court of Appeals 492
- Workmen's compulsory compensation act declared unconstitutional by New York State Supreme Court. (n) 434

Levee construction. (See under name of river; Earthwork.)
Levels, Precise level of the U. S. Coast and Geodetic Survey, Recent work with. By H. C. Mitchell *356

Libraries:
- Notable library of trade publications in New York. Eng. Lit. Sup. (ed) 1
- Wisconsin Municipal Reference Bureau (n) 277

Licensing engineers. (See Engineers.)
Lighthouses, Notes on modern lighthouse practice. Eng. Lit. Sup. 51
Lime, Manufacture and properties of hydrated lime. By R. K. Meade *554
Locomotive boilers. (See Boilers.)
Locomotive headlights, Discussion of, Report of the Block-signal and Train-control Board 83

Locomotives:
- Articulated locomotive of novel design, Garratt type, built in England for Indian Railway (n) 449
- Boilers. (See Boilers, Locomotives.)
- Brussels Exhibition, 1910, Types exhibited 661
- Cinder pickets on smoke-box for railway in China (n) 27
- Contrast in, A 75-ton switch engine, a large compressed air engine and a diminutive plantation engine *491
- Duplex articulated, four-cylinder simple, for the Mexican Ry., Built in England (n) 672
- Electric:
  - Electrically heated boiler for train heating *82
  - Heavy freight service 30-ton locomotive (n) 409
  - Italian three-phase locomotive 510
- Four-cylinder compound with all cylinders outside and driving separate sets of drivers; Hungarian State Rys. (n) 465
- Four-cylinder compound, Novel arrangement of cylinders (ed) 761
- Gasoline, Industrial railways, Light locomotives *20
- Largest in the world, Atchison, Topeka & Santa Fe Ry., 2-10-10-2 and 12-wheel tender *548
- Mallet articulated locomotives with flexible boilers and other special features, Atchison, Topeka & Santa Fe Ry. *480, (ed) 486
- Mallet type of, Present development and future possibilities of (ed) 486
- Mechanical stoker for use on the Pennsylvania R. R. Co. lines, D. F. Crawford, inventor *450
- Mechanical stokers discussed at convention of American Railway Master Mechanics Association 766
- Oiling locomotive tire flanges to overcome resistance on curves. By O. Stuckl 507
- Papers at the convention of the American Railway Master Mechanics' Association 766
- Radius-bar length and swing of locomotive trucks (lets) *578, *700
- Smoke caused in Chicago, Ill. By P. B. Bird 262, (ed) 263
- Smoke preventing devices 767
- Steep grade adhesion railways, Best types of locomotives for. By F. W. Bach *5
- Superheaters for 766
- Tests of an E2A locomotive of the Pennsylvania R. R. Eng. Lit. Sup. 13
- Tests of freight train resistance. Eng. Lit. Sup. 13
- Time allowance for changing from electric to steam locomotives on the Pennsylvania R. R. at Harrison, N. J. (n) 243
- Track tanks for supplying water to tenders, Specifications of the American Railway Engineering Association *410
- Triple-expansion locomotives proposed. (n) 133

London, England:
- Change of political parties in the London County Council (ed) 544
- Statistics of. Eng. Lit. Sup. 42
- Traffic studies and data, Transportation commission report. By H. R. Wilson 438

Lumber dealers associations to be sued by U. S. Government for violation of the Sherman Anti-Trust law. (ed) 633

M.

Machine design:
- German text-book on. Eng. Lit. Sup. 82
- Mechanism, Kinematics of machines. Eng. Lit. Sup. 84
- Recommended jobbing shop practice in designing, drafting and cutting spur and bevel gears. By G. A. Bisset *630, erratum 669

Machine tools, Machine shop primer. Eng. Lit. Sup. 34
Magnets, Unloading pig-iron with (n) 553
Mail, Corporations', Addressing correspondence to corporations (let) 637
Manufacturing wastes, Disposal and purification. Eng. Lit. Sup. 44

Maps:
- Railway maps of the Swiss Government (n) 181
- Topographical maps of the U. S. Geological Survey issued in 1910. Eng. Lit. Sup. 43, 61

Marine engines:
- Diesel engines for seagoing vessels, Construction, Operation, etc. By J. T. Milton 623, (ed) 634
- Experience with geared marine steam turbines in England 638
- Gas engines for propulsion of ships, European developments with Diesel engines 499
- Geared turbines of the U. S. Collier "Neptune," 4,000 HP. each *638
- Speed and power of ships, a manual of marine propulsion. Eng. Lit. Sup. 4
- U. S. Navy, Recent engine-room developments, Engines vs. turbines. By H. I. Cone 33

Marine speedometer, Pitot tube and pressure gage attachment. By F. B. Sanborn *540
Masonry, Waterproofing of, Abstract of the report by committee of the American Railway Engineering Association 372
Massachusetts Institute of Technology, Some factors in the success of. By R. C. Maclaurin 491
Master Car Builders' Association, Annual convention 793

Mathematics:
- Best way to compute the weight of a bar. By F. C. Frink. (n) 517, (let) 701
- Distribution of forces on ship crossing waves at right angles. (German text.) Eng. Lit. Sup. 14
- Engineering mathematics. Eng. Lit. Sup. 55
- Entropy, Physical meaning of. By A. L. Menzin erratum 52
- Entropy, Physical significance of. Eng. Lit. Sup. 3
- Problem of stone cutting from the Pyramids of Egypt. By D. W. Lockwood (let) 667
- Smoley's tables of logarithms, squares, etc. Eng. Lit. Sup. 22

Mechanical drawing. (See Drawing and drawings.)

Mechanical stokers:
- Automatic stoker for locomotives of the Pennsylvania R. R. Co. lines, D. F. Crawford, inventor *450
- Discussion of, American Railway Master Mechanics' Association convention 766

Mechanics:
- Elementary practical mechanics. Eng. Lit. Sup. 58
- Elements of, English book. Eng. Lit. Sup. 58
- Graphical statics and general graphic methods. Eng. Lit. Sup. 33
- Machine-shop mechanics. Eng. Lit. Sup. 50
- Mechanics of internal work in elastic bodies and systems in equilibrium. Eng. Lit. Sup. 50
- Text-book for engineers. Eng. Lit. Sup. 85
- (See also Stresses.)

Meier, Edward Daniel, Biographical sketch of †134

Metal production:
- Alaska for 1910, Preliminary report. (n) 98
- Gold, silver and platinum in California in 1909 (n) 151
- Lead production in United States in 1910 (n) 16
- (See also under name of metal.)

Metals, Brittleness of caused by corrosion (n) 775
Metallurgy, Testing for metallurgical processes. Eng. Lit. Sup. 10

Micrometers:
- Attachment for plane-table alidades and transits for measuring distances. By R. H. Sargent †483
- Measuring dead-load stresses by micrometer gagings of structural parts. *552

Miller, R. P., Votes of confidence for his work as Superintendent of Buildings, New York City 490, (let) 515
Milwaukee, Wis., Municipal Bureau of Economy and Efficiency, Work of. By P. H. Myers 373
Mine accidents. (See Accidents.)
Mine rescue. (See below under Mines and mining.)

Mines and mining:
- Alaska copper mines opened (n) 403
- Chemistry of coal mining. Eng. Lit. Sup. 58
- Coal dust in mines, Spraying with soapy water (n) 376
- Compressed air. (See Air compressors.)
- Cyanide practice, Recent development of. Eng. Lit. Sup. 10
- Electric fire damp detector for coal mines (n) 406
- Experimental coal mine for the study of gas and dust explosions. By G. S. Rice 436
- Gold dredging industry, Development of in various fields. By Charles Janin 95
- Iron-ore deposits of the Moa District, Oriente Province, Cuba. By J. S. Cox, Jr., and others *705
- Mine fires, causes, prevention and fighting of, U. S. Bureau of Mines. By H. M. Wilson 672
- Mine rescue chambers, Pancoast colliery disaster an illustration of their necessity (ed) 485
- Mine rescue work, Automatic resuscitating machine 414
- Pennsylvania coal mining in 1909, Total production, Employees, Accidents, etc. 197
- Practical stamp milling and amalgamation. Eng. Lit. Sup. 10
- Stope drill competition in the Transvaal, South Africa, Results of. By R. N. Kotze 479
- Surveying. (See Surveys and surveying.)
- Ventilation, Robbing air of oxygen by hydraulic compression for mine air supply (n) 391
- (See also Drills and drilling.)

Monuments, Washington, D. C.:
- Proposed Lincoln monument (n) 180
- L'Enfant monument unveiled 676

Mortality statistics. (See Vital statistics.)
Mortar, Setting of cement mortar under compressed air (n) 561
Mosquitoes, Water tanks on roofs in New York City required to be covered (n) 644
Motion study, A method for increasing the efficiency of the workman. Eng. Lit. Sup. 35
Motor cars, Buffalo, Rochester & Pittsburg R. R., Gasoline electric car *551

Motor vehicles:
- Advantages of long-stroke gasoline engines for commercial vehicles. By E. A. Myers 541
- Automobile fire engine test in New York City (n) 367
- Cone clutches for automobiles, Approximate formula for use in design (n) 140
- Design of motor cars. Eng. Lit. Sup. 12
- Development of mechanical traction on roads in Great Britain. By L. A. Legros 531
- Engineering and economic results of commercial motor vehicles 763
- How a macadam road is destroyed by automobile tires 661
- Krupp balloon artillery. By F. P. Mann *452
- Long-distance motor truck run, Denver to San Francisco to New York. (n) 493, (n) 775
- Selden automobile patent declared invalid by U. S. Circuit Court of Appeals (n) 59, (ed) 79
- Smoke nuisance crusade in New York. (n) 662
- Speed record of 141.7 miles per hr., Daytona, Fla., April 23 (n) 523
- Trackless trolley lines in Bremen, Germany (n) 225
- Transmission efficiency of automobile gears 37
- Trucks for handling package freight in railway freight houses, driven by electric storage batteries *564, *760
- Trucks for construction work and commercial haulage purposes. *750, (ed) 762

Municipal franchises, Terms and conditions upon which private corporations enjoy special privileges. Eng. Lit. Sup. 69

Municipal government:
- Atlanta, Ga., Board of Municipal Research and Statistics established. (n) 237
- Bureau of Municipal Research to be established at Harvard University. (n) 493
- City engineer's opinion on civil service principles and practice (ed) 697
- City manager idea (ed) 328, 333
- Commission plan:
  - Loose-leaf digest of short ballot charters. Eng. Lit. Sup. 56
  - Nebraska cities of over 5,000 provided for in proposed law (n) 458
  - New Jersey; General law authorizing the commission plan of city government 612
  - New York and New Jersey propaganda 333
  - St. Louis, Mo.:
    - New city charter (ed) 106, 112
    - New city charter defeated (n) 151
  - Springfield, Ill. 59
- England:
  - English practice of making appointments to municipal positions (ed) 453
  - Government by experts, politicians and lords. Eng. Lit. Sup. 54
  - Impressions of America by an English engineer. By W. F. Goodrich 348
- Initiative, referendum and recall bill passed in California Legislature. (n) 413
- London, England, Change of political party in the London County Council (ed) 544
- Massachusetts cities; Proposed charter modification (n) 458
- Milwaukee, Wis., Bureau of Economy and Efficiency. By P. H. Myers 373
- Mistakes of officials in compelling contractors to do an engineer's work. (ed) 453
- St. Louis, Mo.:
  - New City charter (ed) 106, 112
  - Proposed new city charter defeated. (n) 151
- Seattle, Wash., Civic or Municipal Plans Commission. By N. W. Brockett 16, (ed) 17
- Semi-annual payment of taxes for New York City (n) 491
- Wisconsin Municipal Reference Bureau. (n) 277

Municipal improvement:
- England:
  - Conference on housing and town planning (n) 278
  - Garden cities and garden city suburbs (n) 296
- Rochester, N. Y., City plan for. Eng. Lit. Sup. 40
- To-day and to-morrow, Placing the burden on posterity (ed) 513

Municipal ownership:
- Catasauqua, Pa., Right to build and operate water-works affirmed by State Supreme Court (n) 523

Municipal ownership:
- Electric light plants in New Jersey made possible by proposed law (n) 493
- Regina, Saskatchewan, Canada, Revenue from public lands to pay for sewerage system (n) 458
- (See also Government ownership.)

Municipal problems:
- National Housing Association conference in New York City 708
- Proceedings of the Second National Conference on. Eng. Lit. Sup. 42

Municipal reports:
- Overrate reports. Eng. Lit. Sup. (ed) 49
- Some literary gems from. Eng. Lit. Sup. (lets) 1, 18

Municipal statistics:
- Cities in the United States having a population of 30,000 or over. Eng. Lit. Sup. 38
- London, England. Eng. Lit. Sup. 42

Municipal testing laboratory proposed in New York City 521, (n) 677
Municipal and sanitary engineering, British encyclopedia of. Eng. Lit. Sup. 59

N.

National Association of Cement Users, Proceedings, 1910. Eng. Lit. Sup. 13
National Brick Manufacturers' Association, Annual convention 229

National Electric Light Association:
- Annual convention 702
- Congressional committee to investigate water-power development urged. (n) 189

National Fire Protection Association, Annual convention in New York 673
National Housing Association, Conference in New York City 709

Naval architecture:
- Brake to reduce rolling of ships (n) 181
- Speed and power of ships, A manual of ship propulsion. Eng. Lit. Sup. 4
- U. S. Navy, Recent engine-room developments, Engines vs. turbines. By H. I. Cone 33
- (See also Marine engines; Steamboats and steamships.)

Newspapers; Unreliability of on engineering matters (ed) 730

New York City:
- Proposal to extend Manhattan Island four miles down New York Bay. By T. K. Thompson *576
- Proposed municipal general testing laboratory 521, (n) 677
- Rapid transit problem. (See Subways.)
- Recent waste-detection and meter work in the City Water Department. By E. W. Bemis 39, (ed) 48, (lets) 201
- Water supply. (See Water supply.)

New York State:
- Efficient business organization and present State government (ed) 731 (let) 764
- Proposed abolition of Highways Commission and Board of Consulting Engineers for the Barge Canal. (n) 152, (ed) 170

New Zealand, State socialism, experiments described. Eng. Lit. Sup. 9

O.

Ohio Engineering Society, Annual meeting 179
Ohio State Board of Health, Politics cause changes in personnel of an able staff 211
Oil analysis, Short hand-book of. Eng. Lit. Sup. 87

Oil fuel:
- Automatic regulation of for oil-fired boiler plants (n) 367
- Auxiliary oil-firing for steam-boiler plants. By H. A. Wagner *748
- Producer-gas power plant, 1,000-HP. capacity *591

Ore dressing:
- Cyanide practice, Recent developments in. Eng. Lit. Sup. 10
- Stamp milling and amalgamation. Eng. Lit. Sup. 10
- (See also Rock crushers.)

Ore handling. (See Coal and ore handling.)
Organization of City Officials for Standardizing Paving Specifications. Second annual convention. (See also Association for Standardizing Paving Specifications.) 87
Oxhydric process of cutting and welding metal *508

Oxygen:
- Method for determining the parts per million of dissolved oxygen consumed by sewage and sewage effluents. By C. B. Hoover 311
- Removal of oxygen from air by hydraulic compression for mine air supply (n) 391

Ozonized air for tunnel ventilation (n) 770

P.

Paints and painting:
- Analysis of paints and painting materials. Eng. Lit. Sup. 43
- Development of paint formulas. By L. S. Hughes 273
- Rusting of iron, causes, and prevention of. By A. H. Sabin 551, (lets) 636

Paris, France:
- Paris as a seaport, Proposed deepening of the Seine (n) 76
- Subway system. (See Subways.)

Parks and playgrounds:
- Massachusetts Metropolitan District, Apportionment of the cost of construction and maintenance. By J. A. Holmes 218, (let) 268
- Public buildings and their location in parks and other public open places. 639

Patent agreement, General Electric and Westinghouse Companies not to be renewed (n) 584

Patent law:
- Decisions in. (See Legal decisions.)
- Federal suit against 35 incandescent electric lamp concerns 336

Pavements:
- American Society of Civil Engineers' discussion of construction and maintenance of roads 114
- Asphalt, Specifications, Recommendations for Chicago. By Samuel Whinery 471

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Pavements:
Association for Standardizing Paving Specifications, Proceedings of. Eng. Lit. Sup. ... 55
Bituminous compounds in macadam and earth road construction. By T. R. Agg ... 253
Bituminous macadam, Warren patent sustained by the U. S. Circuit Court of Appeals ... 492
Bituminous road compounds, Test of by scale paraffine determination; Its value as a test. By A. W. Dow and F. P. Smith ... *680
Brick:
Abrasion test, New rattler and method of using, Design adopted by the Organization of City Officials for Standardizing Paving Specifications ... *334
Country road pavements with brick instead of macadam ... (n) 662
Cracking of cement-grouted brick pavements; Causes and remedies. By E. R. Whitmore ... 401
National Paving Brick Manufacturers' Association convention ... 230
Specifications, Recommendations for Chicago. By Samuel Whinery ... 471
Concrete:
Experimental road surfacing with 2-in. cubes of clay and concrete, N. Y. State work. By W. G. Harger. *128
Mason City, Iowa, Specifications for. By F. P. Wilson ... 283, 696
Convention of city officials for standardizing specifications, Second annual convention ... 87
Cross-section of streets with car-tracks in center. By J. G. Clark ... (let) 359
Engineering Society of Wisconsin, Annual meeting, Discussion of paving 335
Macadam:
Preservation of, Progress in ... (ed) 78
Scotland, Binders and surfacing used for preservation of roads ... 296
Notes on roadways for residence streets and thoroughfares in and about New York City ... 64, (ed), 78
Specifications:
Recommendations for use in Chicago, Ill., Specifications. By Samuel Whinery ... 471
Wood-block paving, Discussion of. By Samuel Whinery ... 501
Traffic census on, Methods of taking, Classifications of various boards and commissioners. By A. H. Blanchard and I. W. Patterson ... 250
Wood block:
Creosoted wood block, History, Timber, Cost, Character of work and wearing qualities. By P. E. Green. 474, (let) 635
Laying wood paving with cement-grout cushion along street car tracks ... 57
Proper treatment of creosoted wood blocks for paving. By F. D. Beal. (let) 635
Specifications for, Preservative treatment. By Samuel Whinery ... 501
Specifications, Recommendations for Chicago. By Samuel Whinery ... 471

Philadelphia, Improvement of the port facilities of ... 198, 727
Philippine Islands, Increasing use of artesian wells as a water-supply. (n) 452

Photography:
Exposure tables ... 700
Photo-topographic instrument used on Alaska Boundary survey. By D. W. Eaton ... *495
Suggestions for the engineer-photographer. By S. L. Jeffrey ... 407, (lets) 575, 699, 700, 792

Physics:
Heat, Popular priced handbook. Eng. Lit. Sup. ... 38
Principles of. Eng. Lit. Sup. ... 89

Piers:
Failure of bridge pier foundations and the methods adopted for reconstruction ... 403
Municipal Bridge, St. Louis, Mo., Substructure and foundations for. By S. W. Bowen ... *320
Meaning wharves. (See Wharves and docks.)
Steel forms for filling with concrete for piers and foundations ... *777

Pile drivers, Double-action steam hammers;; Formula for use in estimating the safe bearing load .. (n) 610

Piles:
American Railway Engineering Association, Committee report on wood bridges and trestles ... 385
Concrete:
Drilled holes for concrete pile foundations, New York Central R. R. terminal in New York City ... *165
Panama Canal, Gatun lock foundations ... (n) 28
Diagram for determining the safe load on piles, Engineering News formula. By A. S. Milinowski .. (let) *139
Over-driven piles, Brooklyn, N. Y., Fourth Ave. subway construction. By S. P. Brown ... *224 (erra) 269
Probable life of creosoted piles in tropical waters ... (n) 110
Reinforced-concrete, Lewen system of reinforcing Corrugated plates tied together with wire ... *292
Safe bearing load when driven by double-acting steam hammer .. (n) 610
Sheet piles as a means of decreasing permeability of porous foundations. (let) *109
Sheet-piling, Strength of ... 716
Sheet-piling for cofferdam about the wreck of the battleship "Maine." (lets) 50, *51, *108
Costs of work ... (n) 277
Newspaper account of method ... (n) 237
Progress of the work. *143, (n) 465, *612
Pumping out cofferdam. (n) 709, (n) 769
Steel sheet-piling failure, Cofferdam, LaSalle St. Tunnel, Chicago, Ill. (n) 59
Steel sheet-piling, Proposed method of placing tie-bars in a cofferdam. By F. J. MacIsaac ... (let) *332

Piles:
Teredo, Marine wood destroyers in the waters of the South Atlantic ports. By W. D. Faucette ... 12
Test loading by means of lever. By D. C. Webb ... *172

Pipe:
Cast-iron, Casting with spigot end up. (ed) 729
Cast-iron pipe molding machine and foundry, James B. Clow & Sons. *711 (ed) 729
Cause of internal corrosion of hot-water pipe. By M. J. Falkenburg. *347, (ed) 358, (lets) 516, 517
Cement-lined and covered wrought-iron pipe for use in salt water. By G. W. Priest ... (let) *516
Comparative merits of steel and cast-iron pipe. By Allen Hazen ... 736
Clay:
Standard tests of drain tile and sewer pipe ... 258, (let) *609
Tile drainage for reclaiming wet lands. By G. C. Elliott ... 269
Concrete:
Reinforced-concrete pipe line in alkali soil. By Z. N. Vaughn ... 787
Reinforced-concrete pressure pipe for irrigation purposes, Umatilla Project, Oregon. By H. D. Newell ... *208
Reinforced-concrete, Toronto, Ont., water filtration plant. By F. F. Longley ... *304
Diagrams for determining sizes of steam and exhaust pipe published. (n) 259
Effect of hot water on ... 734
Flow of concrete in. (See Concrete mixing and handling.)
Leadite for calking joints in water mains ... 735
Salt ground, What is the best kind of pipe for ... (lets) 203, 331, *516
Steel:
Durability of welded steel pipe ... (lets) 347, 516, 517
Riveted steel intake pipe, What is the life of? ... (let) 488
Testing machine for making tests of large size (30-72-in. diam.) ... *225
Tests of lap-welded pipe showing tensile strength of 60,000 lbs. per sq. in. ... (n) 119
Steel vs. cast-iron for city water mains, Portland, Me., Decision in favor of cast-iron ... (ed) 633
Wood:
Best pipe for salt ground. By T. C. Hatton ... (let) 331
Use for water mains ... 733

Pipe fittings, Bronze, Hydraulic pressure tests of aluminum-bronze cylinder castings ... *376

Pipe lines:
Compressed air, Profitable refinements in contractors' compressed air plants. By Frank Richards ... *472
Efficiency tests of a 1,170-ft. steam pipe line ... 380
Measuring the flow of with a form of current meter. By R. M. Hosea .. *642, (let) 732
Reinforced-concrete, laid in alkali soil. By Z. N. Vaughn ... 787

Pipe-molding machine, Foundry of James B. Clow & Sons ... *711 (ed) 729
Pipe unions, High pressure union, Osborne patent ... *553
Pitot tubes, Marine speedometer and its development. By F. B. Sanborn .. *540
Pittsburg, Pa., Street railway problems, Reports of B. J. Arnold ... (ed) 169, *176, (let) *203
Plague, extermination in California, Cost of ... (n) 531
Plane-tables, Micrometer alidade for measuring distances. By R. H. Sargent ... *483
Planimeters, Easily understood planimeter designed by author. By S. G. Zuckerman ... (let) *51

Plate girders:
Notes on design of. Eng. Lit. Sup ... 81
Type best adapted for carrying masonry wall, Query ... (n) 149

Plumb bob string knots and catches. (lets) *267, *545

Plumbing:
Mechanical drawing for plumbers. Eng. Lit. Sup. ... 12
Standard practical plumbing. Eng. Lit. Sup. ... 30

Poles:
Attacks of woodpeckers on poles, Observations on. By H. F. Weiss ... *220
Damage to telephone and telegraph poles by woodboring insects ... 542
Reinforced-concrete:
Electric lamp poles for St. Mary's Falls Canal, Michigan. By L. C. Sabin ... *256
Lewen system of reinforcing, Corrugated plates tied together with wire ... *292
(See also Towers for electric power transmission.)

Political science:
Conflict between individualism and collectivism in a democracy. Eng. Lit. Sup. ... 25
Readings in civil government. Eng. Lit. Sup. ... 30

Population statistics:
Massachusetts Metropolitan District, 1910 ... (n) 276
Overcount of 23 cities, Corrected statistics ... (n) 379

Postal rates:
Proposed increase, Effect on advertising rates, objections to, Compensation received by the railways for carrying the mails .. (eds) 199, 232 (lets) 332, 421
Proposed increase on second-class matter to be left to investigation by commission ... (ed) 327

Powder and dynamite explosions. (See Accidents.)

Power plants:
Compressed-air plants, Profitable refinements in contractors' plants. By Frank Richards ... *472
Emergency rope drive in a hydro-electric plant, Holcomb's Rock, Va. By H. R. Lee ... *313

Power plants:
Gas:
Municipal electric plant, Prussia. (n) 716
Oil-fuel producer-gas plant, 1,000-HP. ... *591
Hydraulic:
Hydro-electric practice. Eng. Lit. Sup. ... 74
Financial possibilities of hydro-electric developments in the Central West. By P. M. Lincoln ... *692
Pacific Coast Power Co., Two 20,400-HP. turbines ... (n) 59
Type characteristic of turbines, Application of it to entire water-power plants. By N. Baashuus ... *248
Panama Canal, Construction plant for the Gatun Locks and dam. By Edward Schildhauer and Ernest E. Lee ... †183, (ed) 200, (let) 332
Papers at the annual convention of the National Electric Light Association. 702
Pumping-irrigation project with a central power plant, Portales, N. Mex. By R. P. Woods ... *192
Steam:
Auxiliary oil firing in steam-boiler plants. By H. A. Wagner ... *748
Efficiency tests of a 1,170-ft. steam pipe line ... 380
Piping, Diagrams for determining steam and exhaust pipe sizes published ... (n) 259
Steam-electric development for long-distance transmission, Lehigh Coal & Navigation Co. ... (n) 367
Steamship "Olympic," Details of ... 782
Unified electric systems covering large territories. By W. B. Jackson ... 442
University of Michigan; Overloaded plant ... (n) 677

Power transmission:
Power and its transmission, Hand-book for the factory manager. Eng. Lit. Sup. ... 76
(See Belts and belting; Chain drives; Gears and gearing; Rope drives.)

Prize competitions. (See Architectural competitions; Engineering competitions.)
Providence, R. I., Proposed Roger Williams Street ... (n) 601

Public health:
California anti-plague campaign, Cost of ... (n) 531
California making an effort to have an engineering department in the State Board of Health ... (ed) 387
Campaign against spitting in New York City ... (n) 490
Common drinking cup under ban in New York City ... (n) 397
Conservation by sanitation, Air and water supply; Disposal of wastes. Eng. Lit. Sup. ... 51
Department of public health established at the American Museum of Natural History, New York City. (n) 307
Engineering department of a State Board of Health, Work for. By Ned Baker ... 387
Journal of the American Public Health Association. Eng. Lit. Sup. ... 30
Massachusetts State Board of Health report. Eng. Lit. Sup. ... 8
New York City Department of Health report. Eng. Lit. Sup. ... 51
New York State Bacteriological laboratories established ... (n) 307
North Carolina Board of Health Bulletin, Contributing editors of. Eng. Lit. Sup. ... (ed) 49
Pennsylvania, Annual report of the Commissioner of Public Health. Eng. Lit. Sup. ... 4
Politics in the Ohio State Board of Health ... (n) 211
Prevention of infectious diseases. Work of the quarantine health officer. Eng. Lit. Sup. ... 60
Principles of. Eng. Lit. Sup. ... 68
Public relations of the engineer and the engineer as a health officer. By M. N. Baker ... 346
Sanitary survey of the Ohio River in Pennsylvania. By S. G. Dixon and F. H. Snow ... 22
State boards of health and the multi-control of water-works by various State boards in New York and other States ... (ed) 169
Symposium on public health movement. Eng. Lit. Sup. ... 83
U. S. Bureau of Public Health not provided for by Congress ... (ed) 327
United States not represented at the Dresden Hygiene Exhibition ... (ed) 665
Water meters and water and health conservation in New York City. (ed) 697

Public Health and Marine Hospital Service:
Proposed change of name ... (n) 337
Hospital Service report. Eng. Lit. Sup. ... 72

Public improvements, To-day and to-morrow; On whom should the burden fall? ... (ed) 513

Public lands:
Abandonment of the contract system for public land surveys. By A. B. Bartlett ... (lets) 608, 732
Classification of by U. S. Geological Survey ... (n) 99
Congressional commission to investigate water-power development and public land laws, proposed ... (n) 189
National land system of the United States, 1785-1820. Eng. Lit. Sup ... 3

Public service commissions:
Control of water-works by State boards in New York and other States. (ed) 169
Illinois Board of Railroad and Warehouse Commissioners ... (n) 723
Massachusetts; Proposed commission to replace the present Railroad Commission ... (n) 564
New Jersey:
Decision on the free transportation of public officials ... (n) 769
Martin's Creek accident on the Pennsylvania R. R. investigation .. 768
New York State:
Appointment of politicians ... (ed) 731
Conference at Syracuse of electric railway men, accident inquiry .. (n) 59
Work of engineers in connection with. (ed) 514

Public service corporations:
American corporations as seen by an English engineer. By W. F. Goodrich ... 348
Excessive rates for gas and electric lighting through the operation of a holding corporation, North Adams, Mass. ... 547
Express companies' profits, Interstate Commerce Commission investigation. (ed) 105, (n) 300
Government ownership of the telephone business in England ... 237
Financial conditions of the American street railway industry ... 388
Logical basis for valuations of interurban street railways. By C. G. Young ... 141
Los Angeles, Cal., Southern Pacific Ry. asking for a 250-year franchise. ... (ed) 358
Municipal franchises, Terms and conditions of. Eng. Lit. Sup ... 69
Paris subway system with particular reference to franchise terms and conditions. By R. H. Whitten ... 70, (ed) 77
Pittsburg, Pa., Street railway problems, Reports of B. J. Arnold. (ed) 169, *176
Proposed Colorado state aid for a railway tunnel ... (ed) 453
Telephone rates. (See Telephony.)
Telephone traffic, First decision of the Interstate Commerce Commission. (n) 613
(See also Railway rates.)

Public utilities in Germany, Administration of. (German text.) Eng. Lit. Sup. ... 61
Public works, Commission plan of conducting public works, Proposal to abolish New York State Highway Commission ... (ed) 170
Pulleys, Rope sheave for power transmission weighing 66,750 lbs ... (n) 769
Pulverizing machinery, Tube mill where grinding is done by steel rods ... *58

Pumps and pumping:
Comparative tests of large engine and turbine driven pumps. By Francis Head ... *562
Coney Island, N. Y., high-pressure fire service ... (ed) 730, (n) 742
Construction plant for the Rondout pressure tunnel, New York water-supply aqueduct. By A. D. Flinn. *657
Direct-acting explosion pumps, the Humphrey ... (n) 59
Inventiin of the Ingersoll drill and Cameron pump. By W. L. Saunders ... 277
Persian wheels in India, Wanted, a substitute for. By A. M. Talati. (let) 515
Pnuematic muck ejector with auxiliary air supply, Caisson foundation work ... *261
Portales irrigation project, New Mexico, Pumping from central power station. By R. P. Woods ... *192

Pyramids, Egypt, Problem in stone cutting presented by certain coffers. By D. W. Lockwood ... (let) 667

Q.

Quarries:
Acton Rock Co., Los Angeles, Cal., Stone crushing plant ... *688
Tomkins Cove, N. Y., Stone crushing plant of the Tomkins Cove Stone Co. ... *29, (ed) 48

Quicksand, New method of grouting in quicksand ... (n) 251

R.

Rails:
American Railway Engineering Association, Committee reports at annual convention ... 383
Frog device giving a continuous rail for both tracks, C. B. & Q. Ry ... *344
Manganese-steel frog made of rolled rail, Erie R. R. ... *345
Oiling locomotive tire flanges to overcome resistance on curves. By O. Stucki ... 507
Rail mill practice, Table of ... 509
Titanium-steel rails, Large order ... (n) 149

Railway accidents. (See Accidents.)

Railway construction:
Australia, Western Main Line Ry. of the State of New South Wales, Sydney-Bourke cutoff ... *379
Building, bridge and track standards of the Illinois Traction System ... *649
Madeira & Mamore Ry., Progress of work on ... (n) 465
Pennsylvania R. R., Indianapolis Division double tracking and grade revision ... 641
Western Maryland Ry.:
Cumberland-Connellsville extension. *104, erratum, 140
Cumberland-Connellsville extension; Steam shovel output and cost data. By B. M. Langhead ... (let) *608

Railway economics, When is double-tracking justifiable as a matter of economy ... (ed) 18
Railway employees, Pennsylvania R. R. asks for suggestions from employees ... (n) 549

Railway location:
Curves:
Method of giving track centers on old curves without field computation. By J. R. Baylis ... (let) *391
Table of deflection angles for varying radii and chords. By J. C. Locke. (let) 488
Transition curve, Selection of the length of. By F. H. Carter ... 599
Use of 100-ft. arcs or 100-ft. chords. Eng. Lit. Sup ... (lets) 1, 17, 18
Railroad Field Geometry. Eng. Lit. Sup. (lets) 1, 17, 18

Railway maintenance-of-way:
Annual convention of the American Railway Engineering Association. 383
Mistakes of an unsuccessful engineer. (let) 51
(See also Rails; Ties; Track; etc.)

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Railway management:
Non-technical view of. Eng. Lit. Sup. 37
Railway station service, Duties of the station agent, etc. Eng. Lit. Sup... 77
Scientific management, Brief submitted to Interstate Commerce Commission. Eng. Lit. Sup. ... 55
Railway rates:
Are commutation rates subject to public control? ...(ed) 387
Current railway problems. Eng. Lit. Sup. ... 54
"Efficiency engineering" proposed by Mr. Louis Brandeis at Interstate Commerce Commission hearing. (Eng. Lit. Sup. 55), (ed) 106, (let) 140
Interstate Commerce decision against increase by railway lines east of the Mississippi River and north of the Ohio ...(ed) 264, 274, 293
Railroad traffic and rates. Eng. Lit. Sup. ... 82
Reduction of express rates between New York and New England points (n) 367
St. Louis, Mo., Railway terminal situation and the municipal bridge. By E. R. Rombauer ... 101
Railway stations:
Building standards of the Illinois Traction System ...*649
Chicago, Ill., Chicago & Northwestern Ry. station opened ...(n) 709
St. Paul and Minneapolis, Minn., Union depot problem. By G. H. Herrold ... 535
St. Louis, Mo., Missouri, Kansas & Texas Ry. freight station ...*771
Worcester, Mass., Union passenger station opened ...(n) 705
Railway structures:
American Railway Engineering Association Committee reports ... 384
Building, Bridge and track standards of the Illinois Traction System...*649
Causes of failure of monolithic concrete construction; Reports of the American Railway Engineering Association ... 412
Electrically-operated coaling station, Elgin, Joliet & Eastern Ry ...*676
Reinforced-concrete water tank, Specifications for ...*382
Roofing materials for, Reports of committee of the American Railway Engineering Association ... 412
Railway terminals:
American Railway Engineering Association, Committee Reports on.... 384
Chicago, Ill.:
Investigation of by a commission appointed by Mayor...(n) 243
Proposed electrification of lines..(n) 27
Design of passenger terminals of medium size. Report of committee of American Railway Engineering Association ...*414
Mechanical handling of freight, baggage and mail matters...*463
Mechanical handling of freight, Layout of terminals for, Transfer stations, etc. By M. B. Waterman. *566, erratum 611
Montauk Point, L. I., Proposed transatlantic terminal ...(ed) 263
New York City:
Grand Central, Pintsch gas explosion, Results of investigation, *174, erratoum 237
West Side freight traffic problem, Subway and elevated railway plans*447
Passenger and freight terminals in large cities, Needs of. By F. A. Delano...25, (let) 108
Philadelphia, Pa., Broad St., Proposed electrification of Pennsylvania R. R. ... 644
St. Louis, Mo.:
Missouri, Kansas & Texas Ry., Freight terminal equipped for the mechanical handling of freight....*771
Terminal problem and the new municipal bridge. By E. R. Rombauer. 101
Railway yards, Missouri Pacific Ry., at Dupo, Ill., Lighting a double-hump yard ... 394
Railways:
Alaska, Copper River & Northwestern Ry. opened ...(n) 403
Australia, Western Main Line Ry. of the State of New South Wales, Sydney-Bourke cutoff...*379
Automatic railway, Construction plant for the Gatun locks and dam, Panama Canal ...*183, (ed) 200
Boston, Mass., Proposed compulsory electrification of terminals. (ed) 485, (n) 677
Boston & Albany R. R.:
Electrification of lines in Boston, Report of Metropolitan Improvement Board ...(ed) 137, 144
Traffic agreement with New York, New Haven & Hartford R. R. (ed) 543
Boston & Maine R. R. Hoosac tunnel electrification ...*694
Chicago, Ill.:
Proposed electrification of, Committee appointed ...(n) 382
Smoke nuisance and proposed electrification of lines...(n) 27, 262, (ed) 263
Copper River & Northwestern Ry. opened, Alaska...(n) 403
Denver, Northwestern & Pacific Ry. Proposed four-mile tunnel in Colorado and State aid...(ed) 453
Double-tracking. When is it justifiable as a matter of economy?...(ed) 18
England, Our home railways, History and description of. Eng. Lit. Sup.. 39
Freight handling; Present development and future possibilities of the Mallet type of locomotive...(ed) 486
Freight transportation within cities must be furnished by railways in Ohio ... 768
Government ownership of railways. Eng. Lit. Sup. ... 8
Highest railway point in the world. (n) 45
Impressions of America by an English engineer. By W. F. Goodrich... 348
Industrial:
Industrial railway at Panama Canal, Construction plant for the Gatun locks and dam *183, (ed) 200, (let) 332
Industrial railways in the United States being investigated...(n) 493
Railways: Industrial:
Locomotives for, Gasoline engines..*20
Intercontinental Ry. project again mentioned ...(ed) 263
Interstate Commerce Commission report for 1909-10. ... 73
Japan; History of; Government ownership, etc. By J. F. Paige... 776
Long Island R. R., Ticket-making machine introduced ...(n) 165
Madeira & Mamore Ry., Progress of construction work ...(n) 465
Massachusetts, Receipts and expenditures for 10 years 1901-1910..(n) 178
Missouri, Kansas & Texas Ry., St. Louis freight terminal...*771
New England, Consolidation of under one management ...(ed) 543
New York Central & Hudson River R. R., Proposed elimination of surface tracks on New York City West Side *447
New York, New Haven & Hartford R. R.:
Electrification of lines in Boston, Report of Metropolitan Improvement Board ...(ed) 137, 144
Traffic agreement with New York Central lines...(ed) 543
Paris subway system. (See Subways)
Pennsylvania R. R.:
Double-tracking and grade revision on the Indianapolis Division..(n) 641
Forestry operations on a large scale (n) 590
Good-roads educational train. (n) 164, 223
Mechanical stoker for use on locomotives, D. F. Crawford, inventor...*450
Proposed electrification of the Broad St. terminal, Philadelphia, Pa. (n) 644
Record fast train run...(n) 119
Relief funds department, Payments during 1910...(n) 180
Suggestion from employees asked for on the Buffalo & Allegheny Division ...(n) 549
Time allowance for changing from electric to steam locomotives and vice versa ...(n) 243
Steel mail cars, Description of..(n) 319
Traffic on new track over the Schuylkill River opened...(n) 119
Trespassers killed since Jan. 1, 1900 (n) 59
Postal rates, and payments for hauling mails...(eds) 199, 232, (lets) 332, 421
Rate decisions. (See Railway rates.)
St. Paul and Minneapolis Minn., Union depot problem. By G. H. Herrold. 535
Securing efficiency in railroad work. Eng. Lit. Sup. 27
Southern Pacific Ry., Terminal improvements at Los Angeles, Cal., 250-year franchise asked...(ed) 358
Steep grade adhesion railways, Locomotives for. By F. W. Bach...*5
Switzerland, Maps of Swiss Government Rys. ...(n) 181
Tehuantepec Ry. of Mexico as a competitor of the Panama Canal for handling traffic between Atlantic and Pacific Coasts. By I. W. Sylvester ...(ed) 77, (let) 455
Tractive resistance compared with boats and effect on transportation costs. By S. A. Thompson...(let) 329
Traffic and rates...Eng. Lit. Sup. 83
Train crew law passed in Pennsylvania. (ed) 789
Western Maryland Ry., Cumberland-Connellsville extension ...*104, 140
Rainfall:
Heavy snowfall in western mountains for irrigation reservoirs...(n) 337
New York and Eastern States; Reservoirs replenished ...(ed) 762
Percolation, evaporation and run-off in relation to rainfall. By W. P. Mason ... 75
Variability of run-off of Minnesota streams during the low-water season of 1910. By R. Follansbee...*536
Rat extermination in California for plague prevention, Cost of....(n) 531
Rattlers, Abrasion tests of paving brick, Method of, Design adopted by the organization of City Officials for Standardizing Paving Specifications *334
Real estate, Economics of real estate investments. Eng. Lit. Sup. ... 69
Recording and indicating instruments:
Current meter for measuring the flow of water in large pipe lines. By R. M. Hosea ...*540
Marine speedometer made of a pitot tube and pressure gage. By F. E. Sanborn ...*540
Micrometer gage for measuring dead-load stresses in structural parts...*352
Planimeters Easily understood design by author. By S. G. Zuckerman (let) *51
Steam engine indicator handbook. By C. N. Pickworth....Eng. Lit. Sup. 37
Steam engine indicators, Reducing motions for. By J. A. Seager...*478
Thermometer for lower temperatures, Bristol Co...(n) 59
Reservoirs:
Conklingville project, Sacandaga River near Hadley, N. Y., Gaging station. By C. C. Covert and D. R. Cooper *245
Genesee River, N. Y., Proposed water storage for flood prevention and amelioration of low-water conditions. By A. H. Perkins *316, (ed) 327
London, England, Projected construction ...(n) 151
Oakland, Cal., Central reservoir of the People's Water Co., Concrete-lined side slopes. By C. H. Park and G. S. Jacobs... *15
Oil Reservoir at San Luis Obispo, Cal., Partial failure of walls. *310, (lets) *490
Omaha, Neb., Water treatment by coagulation, sedimentation and hypochloride disinfection. By F. H. Marshall ...*399
Ottawa River, Canada, Storage reservoirs for the control of... (Eng. Lit. Sup., 53), 405
Water storage on state lands authorized in New York...(n) 622
Waterbury, Conn., Morris dam and water-supply extension ...*342
Retaining walls:
Abutments for bridges. (See Abutments.)
Chicago, Milwaukee & St. Paul Ry. special designs for track elevation, Plain and reinforced-concrete. By J. H. Prior...*470
Earth pressures as affecting the design of structures. (French text.) Eng. Lit. Sup. ... 10
Light timber bulkhead at the Key West, Fla., Naval Station. By D. C. Webb ...*451
Panama Canal, Culebra cut lining. Question as to use of walls. By E. L. Corthell ...(eds) 17, 172, (let) 172
Partial failure of a large oil reservoir at San Luis Obispo, Cal...*310 (lets) *490
Reinforced-concrete, for freight station of the Missouri, Kansas & Texas Ry. at St. Louis, Mo...*773
Tables for use in determining earth pressures. By W. E. Weston...*756
Richards, Ellen H.:
Biographical sketch of. By C.-E. A. Winslow ... 418
Life of, to be written. Eng. Lit. Sup. (n) 74
River discharge and velocity:
Analysis of stream gagings. German text. Eng. Lit. Sup... 82
Conklingville reservoir project and the permanent gaging station on the Sacandaga River, near Hadley, N.Y. By C. C. Covert and D. R. Cooper..*245
Determination of stream flow during the frozen season. By C. R. Adams. 124
Kennedy's laws of silting. Formulas for determining the amount of silt in streams. By C. A. Mees...(let) 701
Kutter formula values for rock-cut channels ...(lets) 488, 610, 701
Minnesota streams during the low-water season of 1910, Variability of run-off. By R. Follansbee...*536
Stream gaging in America. German text. Eng. Lit. Sup... 82
Umatilla River, Ore., Values of Kutter's formula derived from. By J. C. Stevens...(let) 701
River and stream pollution. (See Water pollution.)
Rivers:
Charles, Arresting the flow of a large tidal river. Charles River dam, Boston, Mass. By J. A. Holmes, *284, erratum 362
Colorado:
Levee construction to protect Imperial Valley, Good record in... 505
U. S. Government work of repairing the break into Salton Sea...*99
Genesee, Proposed water storage for flood prevention and amelioration of low-water conditions. By A. H. Perkins ...*316, (ed) 327
Hackensack, New Jersey State Board of Health's orders to stop pollution by sewage ...(n) 462
Housatonic, Possible source of water-supply for New York City; Complications ...(ed) 604, (let) 607, (ed) 634, 665, (let) 669, 670, 700
Hudson:
Pier-head line extension at New York City, Objections to. Decision of War Department, (eds) 47, 297, 300, 366, (let) 457
Project to dam the river at Troy, N. Y., Controversy over...(n) 583
Illinois, Report of Board of Engineers on the Illinois section of the Lakes-to-the-Gulf deep waterway... 269
Minnesota, Variability of run-off during the low-water season of 1910. By R. Follansbee ...*536
Mississippi:
East St. Louis, Ill., Project for levee construction and drainage. By T. N. Jacob ... 132
History and facts about. Eng. Lit. Sup. ... 6
Lakes-to-the-Gulf deep waterway improvement. (See Water transportation.)
Ohio:
Contamination of, Bill to prevent drafted by Ohio River Sanitary Commission ...(n) 119
Sanitary survey of in Pennsylvania. By S. G. Dixon and F. H. Snow... 22
Ottawa, Storage reservoirs for the control of ...Eng. Lit. Sup., 53, 405
Paris, France, Proposed deepening of the River Seine ...(n) 76
Sacandaga River near Hadley, N. Y., Permanent gaging station, Reservoir project. By C. C. Covert and D. R. Cooper ...*245
Ten Mile, N. Y. (See Water Supply, New York City.)
Rivets and riveting:
Moment value of rivets, Formulas for obtaining. By A. G. Hayden..(let) *19
Tests of nickel-steel riveted joints with special reference to alternating stresses, Quebec Bridge details...*526
Tests of rivet steel for gripping power. *41
Roads:
American Society of Civil Engineers discussion of construction and maintenance ... 114
Arkansas feat of road building, Seven miles in one day...(ed) 543
Automobile tires destroying macadam roads; How they do it... 661
Bituminous compounds in macadam and earth road constructoin. By T. R. Agg ... 253
Bituminous road compounds; Tests of by scale paraffine determination, Value as a test. By A. W. Dow and F. P. Smith...*680
Country roads paved with brick....(n) 662
Extensive improvements in California, (n) 59
Good-roads educational train on the Pennsylvania R. R. ...(n) 164, 223
Kansas law classifying country highways ...(n) 535
Louisiana good-roads construction..(n) 465
Macadam. (See Pavements.)
Meadow roads as constructed in Southern New Jersey counties. By E. D. Rightmire ... 166
Roads:
Methods of taking traffic census, Classifications of various boards and commissions. By A. H. Blanchard and I. W. Patterson ... 250
New York State, Proposal to abolish the State Highway Commission. (n) 152, (ed) 170
New York State work with additional data on top course of 2-in. cubes of clay and concrete. By W. G. Harger ...*128
Newhall tunnel, Los Angeles County highway, California ...*632
Notes on roadways for residence streets and thoroughfares in and about New York ...64, (ed) 78
Ohio, Good roads bill passed by state legislature ...(n) 493
Opportunity for engineers in highway work. By A. N. Johnson... 132
Pennsylvania proposed state road construction ...(n) 461
Scotland, Surfacing used to preserve macadam roads ... 296
Tarring roads as a cause of injury to adjacent plants and trees...(n) 119
Rock crushers:
Patent decision on the Edison Giant Rolls ...(n) 769
Plant of the Tomkins Cove Stone Co., Tomkins Cove, N. Y....*29, (ed) 48
Stone crushing plant of the Acton Rock Co., Los Angeles, Cal...*688
Tests of voids in crusher-run stone. By J. R. Taft... 26
Rockwork:
Cost data on the Los Angeles aqueduct. By C. H. Richards ... 748
Definition of rock in specifications of the Board of Local Improvements of Chicago, Ill. ... 683
Excavation of the Buffalo, N. Y., waterworks tunnel and intake. By C. H. Hollingsworth ...*153
Improvements in machinery for handling earth and rock as a result of experience at Panama ... 56
Panama Canal, Economy in the use of dynamite ...(n) 191
Rapid shaft sinking record made on the Catskill Aqueduct...(n) 464
(See also Drills and drilling.)
Rolling mills:
Geared steam turbine in an English steel mill, 750 HP... 639
German text-book on. Eng. Lit. Sup.. 24
Rail mill practice, Table of... 509
Roofs:
Arch roof of novel design, State Fair live-stock building, Dallas, Tex. By H. E. Arthur...*728
Fire tests of roof coverings, Reports of committee of American Railway Engineering Association ... 413
Manufacture of clap roofing tiles. Eng. Lit. Sup. ... 53
Roofing materials for railway structures, Report of Committee of the American Railway Engineering Association ... 412
Strength of tank roofs, Solution of problem wanted, (n) 109, (lets) 140, 237
Rope drives:
Emergency rope drive in a hydro-electric plant. By H. R. Lee...*313
Sheave for power transmission weighing 66,750 lbs. ...(n) 769

S.

Safety devices:
Cars; Discussion, Master Car Builders' Association ... 794
Hollow safety set screws, Warman patent ...*511
Self-closing crane hook, Norden patent ...*565
St. Louis, Mo.:
New city charter....(ed) 106, 112, (n) 151
Railway terminal situation and the municipal bridge. By E. R. Rombauer ... 101
Sanitation:
Common drinking cups prohibited in public places in New Jersey....(n) 641
Conservation by sanitation, Air and water supply; Disposal of wastes. Eng. Lit. Sup. 51
Dust and its dangers....Eng. Lit. Sup. 40
Healthy homes and summer resorts, Eng. Lit. Sup. 44
Indiana Sanitary and Water Supply Association, Annual Meeting... 210
Municipal chemistry, Lectures at the College of the City of New York, Eng. Lit. Sup. 22
Primer of hygiene...Eng. Lit. Sup. 68
Principles of hygiene and public health, Eng. Lit. Sup. 68
Public drinking cup under ban in New York City ...(n) 397
Public relations of the engineer and the engineer as a health officer. By M. N. Baker... 346
Rural hygiene and sanitation, Eng. Lit. Sup. 52
(See also Plumbing; Public health; Sewage purification, etc.)
Scales, Track scale of 300,000-lbs. capacity with relieving gear and adjustable hump ...*364
Scientific American cyclopedia of formulas ...Eng. Lit. Sup. 40
Screens, Stone-crusher plant of the Tomkins Cove Stone Co., Tomkins Cove, N. Y. ...*29, (ed) 48
Sea-walls, (See Bulkheads; Wharves and Docks; Retaining walls.)
Seattle, Wash.:
Civic or Municipal Plans Commission. By N. W. Brockett...16, (ed) 17
Telephone situation, Report by C. H. Judson and F. B. Hall, Engineers. 652
Separating machinery, Moodie "Selector" for separation of cement, etc. ...*191
Set-screws, Hollow safety set-screws, Warman patent ...*511
Sewage analysis, Method for determining the parts per million of dissolved oxygen consumed by sewage and sewage effluents, Columbus sewage works. By C. B. Hoover... 311
Sewage disposal:
Belfast, Ireland, Relation of sea lettuce to sewage disposal ...(n) 475

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Sewage disposal:
British encyclopedia of muncipal and sanitary engineering. Eng. Lit. Sup. 59
Canada, Report of Committee of the Canadian Society of Civil Engineers ... 151
Chicago, Ill.:
Calumet drainage canal and its relation to the sewage disposal problem. By L. K. Sherman ... 150
Drainage canal, Court decision as to the enforcement of the time penalty in contracts ...602, (ed) 603
North Shore drainage channel, Construction details ... *14
Disposal with respect to offensive odors, Putrefaction of sewage, Guarding against odors, Sludge disposal, etc. By G. W. Fuller ... 476
Germany:
Berlin sewage farms, Financial losses and proposed preliminary treatment of sewage ...(ed) 544
Sanitary districts of and the Imhoff sewage purification tank... erratum 237
Hackensack River pollution ordered stopped by the New Jersey State Board of Health ...(n) 462
Healthy homes and summer resorts, Eng. Lit. Sup. 44
Massachusetts Metropolitan District, Apportionment of the cost of construction and maintenance. By J. A. Holmes ...218, (let) 268
Milwaukee, Wis., Radical changes recommended by commission of Engineers ...(n) 644
New York Harbor pollution, Suit by the State of New York not to be discontinued ...(n) 465
New York State, Proposed State commission for Niagara River inquiry, (ed) 665
Passaic Valley Sewerage District, Threatened disintegration of, (eds) 232, 424, (lets) 299, 422, 423
Privy vaults, Paper at the First National Conference on Housing in America. By C. B. Ball ... 709
(See also Sewage purification.)
Sewage purification:
Bacteriological and enzyme chemistry, Eng. Lit. Sup. 53
California, List of plants in ...(n) 437
Camp Perry, Ohio, National Rifle Range; Intermittent filters. By R. W. Pratt ... *758
Columbus, Ohio, Method for determining the parts per million of dissolved oxygen consumed by sewage and sewage effluents. By C. B. Hoover ... 311
Design and construction of disposal works ... Eng. Lit. Sup. 12
England:
Darfield plant for treating 120,000 U. S. gals. daily ...(n) 637
Melton Mowbray plant ...(n) 11
Factory wastes of manufacturing sewage, Disposal and purification, Eng. Lit. Sup. 44
Farm method, Berlin, Germany, Financial losses and proposed preliminary treatment of sewage. (ed) 544
Filtration processes, Disinfection. By G. W. Fuller ... 477
Germany:
Berlin sewage farms, Financial losses and proposed preliminary treatment of sewage ...(ed) 544
Sanitary districts of and the Imhoff purification tank ... erratum 237
Imhoff tank:
Diagram showing results of tank in Germany ... 16
Experimental sewage-clarification tank at Philadelphia and original tanks in Germany ... 663
German sanitary districts and description sewage-purification tanks. erratum 237
Septicization in two-story tanks. By G. W. Fuller ... 477
Sludge disposal. By Rudolph Hering ...(let) 50
Latrine septic tank, percolating filters and contact beds in India, Eng. Lit. Sup. 34
Massachusetts State Board of Health report ... Eng. Lit. Sup. 8
Oklahoma City, State sanitary zeal and ignorance with reference to water supply and sewage purification. By Alexander Potter ...(let) 267
Philadelphia, Pa.:
Experiment station work, Tests of various methods ...(ed) 513, 506
Experimental Imhoff tank and original tanks in the Emscher District of Germany. By Rudolph Hering and Chas. Saville ... 663
Experiments, Report on, Eng. Lit. Sup. 74
Prevention of offensive odors, Sludge disposal, Septicization in two-story tanks, Filtration processes ... 476
Septic tanks, Septicization in two-story tanks. By G. W. Fuller ... 477
Septic tanks. (See also Imhoff tank.)
Sewerage:
Camp Perry, Ohio, National Rifle Range, System and Sewage purification. By R. W. Pratt ... *758
Design and construction of sewerage systems ... Eng. Lit. Sup. 67
Massachusetts Metropolitan District, Apportionment of the cost of construction and maintenance. By J. A. Holmes ...218, (let) 268
Regina, Saskatchewan, Canada, Revenue from municipally owned land to pay for system ...(n) 458
Sewers:
Apparatus wanted for detecting location of old Y and T branches..(n) 140
Excavating machinery for ditching and trenching. By E. E. R. Tratman ...*215, erratum 269, *318
Lexington, Va., Leaks from sewer to water main evidently a cause of typhoid fever. By A. W. Freeman and Richard Messer ...*498, (ed) 513
New York City; Gowanus Canal flushing sewer ...(n) 795
Passaic Valley Sewerage District, Threatened disintegration of, (lets) 299, 422, 423, (ed) 232, 424
Sewers:
Specifications defining rock, Board of Local Improvements, Chicago, Ill.. 683
Trench excavation with revolving steam shovel ... *37
Shells as aggregate for concrete. (See Concrete.)
Shipbuilding, American work during 1910 second only to England ...(n) 228
Shipping, American statistics for 1909-10 ...(ed) 544
Shipwrecks. (See Accidents.)
Shops and factories:
Argument for permanent construction. By R. W. Wetherill ...*406, (ed) 419
Continuous pipe foundry of James B. Clow & Sons ...*711, (ed) 729
Industrial plants; Their arrangement and construction. By Charles Day. Eng. Lit. Sup. 41
Industry and progress, Problems surrounding industrial life. By Norman Hapgood ... Eng. Lit. Sup. 79
Principles of scientific management. By F. W. Taylor ... Eng. Lit. Sup. 70
Reinforced-concrete factory buildings with timber floor construction. By F. W. Wilson ... 504
Scientific management ...(ed) 358
Taylor system of scientific management and efficiency engineering not synonymous. By G. F. Miles..(let) 636
(See also Industrial organization; Labor.)
Sidewalks:
Concrete:
Recommendations for Chicago, Ill., specifications. By Samuel Whinery ... 471
Slabs of destructor-clinker concrete at Nottingham, England ... 46
Standardized street and sidewalk widths. By John Nolen ... 643
Siemens, Werner von, Life, German text Eng. Lit. Sup. 82
Sieves, Mechanical cement-shaker sieve. 779
Signals and signaling:
Automatic alternating current block signal system for steam railroads.. 479
Automatic train stops:
Block signals with automatic stops on the interurban electric lines of the Washington Water Power Co...*620
Necessity of their introduction. By W. M. Torrance ...(ed) 77, (let) 80
New York subway ...(n) 280
Report of Block-signal and Train-control Board ...(ed) 77, 85
San Francisco, Oakland & San Jose Consolidated Ry ... 445
Block signal statistics for the United States, 1910 ...(n) 561
Block-Signal and Train Control Board. Report to the Interstate Commerce Commission ...(ed) 77, 82
Block-Signal and Train Control Board Report ... Eng. Lit. Sup. 59
Drawbridge accidents caused by lack of interlocking signals ...(ed) 633
Index of signal literature. Eng. Lit. Sup. 77
Midland Ry. of England, Collision at Aisgill Moor, Scotland. By H. Raynar Wilson ... *102
Portable storage batteries as applied to automatic signals on the Harriman lines. By A. H. McKeen ... 409
Siphons:
Moodna, New York aqueduct, Air compressor plant for driving ... 223
Rondout pressure tunnel of the Catskill aqueduct, New York water-supply. By A. D. Flinn ... *654
Siphon spillways in Europe, Advantages and difficulties of the siphon spillway. By Adolph Ludin ... *467
Slide rules:
Barth's slide rule for designing spur gears. By G. A. Bisset ... *630
Practical manual of. By C. N. Pickworth ... Eng. Lit. Sup. 22
Sluice gates, New York Barge Canal, Guard gate and by-pass gate, near Waterford, N. Y. ... *778
Smelters:
Copper smelting practice Eng. Lit. Sup. 82
Oil as a fuel for a Nevada smelter (n) 25
Smoke prevention:
Automobile smoke nuisance, Crusade against in New York ...(n) 662
Chicago, Ill., Locomotive smoke and coal consumption, Smoke measurement. By P. B. Bird ...262, (ed) 263
Devices for smoke prevention for firing up locomotives at terminals ... 767
Washing dust and smoke from chimney gases at York, England. By J. B. C. Kershaw ... *255
Snowslides, Utah, Utah Coalition Mine, Jan. 31 ...(n) 151
Socialism, Experiments in New Zealand. Eng. Lit. Sup. 9
Sounding. (See Surveys and surveying.)
Specifications:
Asphaltic treatment of roadways ... Eng. Lit. Sup. 30
Bridges, Reinforced-concrete. By W. J. Watson ... Eng. Lit. Sup. 13
Hydrated lime, Tests and specifications for. By R. K. Meade ... 557
Paving specifications, Second annual convention of city officials for standardizing ... 87
Rock definition from the specifications of the Board of Local Improvements of Chicago, Ill. ... 683
Standard tests of drain tile and sewer pipe. By A. Marston and A. O. Anderson ... 258
(See also Bridges; Buildings; Cement; Concrete; Coal; Contracts and contractors; Pavements, etc.)
Speedometers, Marine speedometer made with a pitot tube and pressure gage. By F. B. Sanborn ... *540
Spikes, Screw-spikes and tie-plates of the Pittsburgh & Lake Erie R. R. ... *110
Spillways, Siphon spillways in Europe, Advantages and difficulties of the siphon spillway. By Adolph Ludin *467
Stair treads, Cast-iron surfaced with alundum ...(n) *691
Standard Oil Co., U. S. Supreme Court decision dissolving ...(eds) 603, 633
Statistics:
How to make use of them. Eng. Lit. Sup. ... 38
(See also Accident statistics; Electric railway accident statistics; Municipal; Railway; Vital, etc.)
Steam:
Diagrams for determining size of steam and exhaust pipes published..(n) 239
Entropy of, Physical meaning. By A. L. Menzin ... 52
Entropy of, Physical significance of. Eng. Lit. Sup. ... 3
Pipe line tests of efficiency of a 1,170-ft. line ... 380
Temperature-entropy diagram. Eng. Lit. Sup. ... 78
(See also Thermodynamics.)
Steamboats and steamships:
Brake to reduce rolling of ships...(n) 181
Canadian lake and river steamers built in England ... 645
Gas-engine vessels under construction in Europe ...(n) 367
Largest car-ferry steamer in the world, "Ann Arbor No. 5" ...(n) 541
Monster new White Star liners and docking facilities in New York City ...(eds) 47, 297, 300
"North West" of Buffalo, N. Y., damaged by fire ...(n) 709
"Olympic," Power plant of ... 768
"Prinzess Irene" ashore near New York on April 6 ...(n) 464
Speed and power of ships, a manual of marine propulsion..Eng. Lit. Sup. 4
Steamer equipped with coal and ore handling conveyors ...(n) 643
Tractive resistance of boats and trains compared, Effect on cost of transportation. By S. A. Thompson ... (let) 329
(See also Marine engines; Shipwrecks.)
Steam engine indicators, Reducing motions for. By J. A. Seager ... *478
Steam engines:
Comparative tests of large engine driven and turbine driven pumps. By Francis Head ... *562
Converting a 56-year-old steam engine for triple expansion ...*43, (ed) 47
Indicator handbook for beginners ... Eng. Lit. Sup. 37
Steam engine and other heat engines Eng. Lit. Sup. 66
U. S. Navy, Recent engine-room developments, Engines vs. turbines. By H. I. Cone ... 33
Steam generator for heating trains, heated by electric current ... *82
Steam-hammers, Noted steam-hammer at the Krupp works, Essen, Germany, put out of use ...(n) 563
Steam main explosion, Steamship "State of Ohio," May 4 ...(n) 583
Steam shovels:
Cost data and month's output on the Cumberland-Connellsville extension of the Western Maryland Ry. By B. M. Langhead ...(let) *608
Revolving steam shovel for sewer trench digging ... *37
Tripping device invented at Panama (n) 727
(See also Dredges; Excavation, etc.)
Steel:
Armor plate for warships, Simpson weld for ... 459
Development and treatment of locomotive boiler tubes. By F. N. Speller ... *611
Drop forging, die sinking, etc. Eng. Lit. Sup. 88
Effect of vibration and load on steel. By P. R. Alger ... 497
Nickel-steel tests for the Board of Engineers of the Quebec Bridge. Tests with special reference to alternating stresses ... *526
Rail mill practice, Table of ... 509
Strength of, Full-size eyebar tests for Beaver, Pa., bridge of the Pittsburgh & Lake Erie R. R. ... 212
Structural steel, Concrete protection coating for a small tank tower ... *7
Tests, Gripping power of riveting steel *41
Titanium-steel rails, Large order of (n) 149
Why it is imported, German reason for use of imported steel in the Singer Building, New York ...(n) 765
(See also Concrete, Reinforcement; Iron and steel.)
Stone crushers. (See Rock crushers.)
Stone cutting problem from the Pyramids of Egypt. By D. W. Lockwood ...(let) 667
Storage-battery trucks. (See Motor vehicles.)
Storage batteries:
Car used on the West Orange Branch of the Erie R. R. driven by Edison cells ...(n) 512
Portable storage batteries as applied to automatic signals on the Harriman lines. By A. H. McKeen ... 400
Storage battery engineering. Eng. Lit. Sup. 29
Stream gaging. (See River discharge and velocity.)
Street cleaning, Data on street-cleaning efficency in Berlin, Germany. By Rudolph Hering ...506, (ed) 603
Street railways:
London, England, Traffic problem, Work of transportation commission. By H. R. Wilson ... 439
Prevention of street-car overcrowding in several European cities ... 381
(See Electric Railways; Elevated Railways; Public Service Corporations.)
Streets:
Buildings in relation to street and site; City Planning Conference ... 640
Cross-section of car-track streets. By J. G. Clark ...(let) 359
Notes on roadways for residence streets in and about New York City ... 64, (ed) 78
Providence, R. I., Proposed Roger Williams street ...(n) 601
Unit widths of streets and roadways, Paper at National Conference on City Planning. By John Nolen (ed) 633, 640 643
(See also Pavements; Roads.)
Stresses:
Bending moment in a square reinforced footing slab ...(lets) *329, 455
Built steel columns, Tests by Pennsylvania R. R. and University of Illinois ...324, (ed) 328
Cantilever bridge over the Ohio River of the Pittsburg & Lake Erie R. R., Details of design ...*89, (ed) 105
Graphic statics and general graphic methods. By W. L. Cathcart ... Eng. Lit. Sup. 33
Kinetic theory of engineering structures. By D. A. Mollitor and L. E. Moore ... Eng. Lit. Sup. 65
Manhattan Bridge, New York City, Proposal to apply test loadings. By Gustav Lindenthal and K. L. Martin ...(lets) 517
Mechanics of internal work in elastic bodies and systems in equilibrium Eng. Lit. Sup. 50
Micrometer gagings of structural parts to measure dead-load stresses ... *352
Modern framed structures. Eng. Lit. Sup. 85
Moment value of a group of rivets, Formulas for obtaining. By A. G. Hayden ...(let) *19
Nickel-steel tests for the Quebec Bridge details, Special reference to alternating stresses, Models of compression members ... *526
Tank roof problem, Wanted a solution ...(n) 109, (lets) 140, 237
Tensile stresses in aluminum-bronze cylinder castings, Hydraulic pressure tests. By H. C. H. Carpenter and C. A. Edwards ... *376
(See also Bridge loadings.)
Structural details:
Beaver, Pa., bridge of the Pittsburgh & Lake Erie R. R. over the Ohio River ...*89, (ed) 105
Denver, Colo., Street viaducts, 20th and 23rd sts. ... *8
Derrick with inclined mast supported by a cruciform sub-surface foundation. By Eric Swenson ... *130
Economical device to take the place of cast or forged angle washers. By F. R. Steuart ...(let) *50
Moment value of a group of rivets, Formulas for obtaining. By A. G. Hayden ...(let) *19
Notes on plate girder design. Eng. Lit. Sup. 81
Steel arch viaduct over O. K. Creek valley, Kansas City, Mo. By Kenneth Hartley ... *440
Water tank of 200,000 gal. capacity, St. Louis, Mo., Insane Asylum ... *62
Subsidence, Washington, Pa., Foundry building wrecked by subsidence into old mine ...(n) 27
Subways:
Boston, Mass., Proposed subway under bank of Charles River ...(n) 613
Chicago, Ill.:
Freight tunnel system ...(n) 27
Proposed system, Report of B. J. Arnold, Proposed shuttle system *226 (ed) 489, (let) 489
Proposed system to be built and entirely owned by city ...(n) 644
London, England, ozonized air for ventilation ...(n) 770
New York City:
Automatic train stops to be used on local tracks ...(n) 280
Brooklyn Fourth Ave., Over-driven piles. By S. P. Brown ... *224, erratum 269
Extension of rapid transit system. Decision of committee on proposals, (n) 741
Negotiations for the construction of new subways, Offers of two companies ...(n) 583
Passengers carried in 1910 ...(n) 180
"Subway ear," Compressed air in the subway. By Frank Richards. (let) 330
Triborough, Report of the Citizens' Committee appointed to examine situation ... 43
West Side freight traffic problem, Proposed subway solution of ... *447
Paris, France:
Pont Mirabeau crossing of the Seine, Metropolitan subway ... *590
System of, with particular reference to franchise terms and conditions. By R. H. Whitten ... *70, (ed) 77
Pittsburg, Pa., Reports of B. J. Arnold on the improvement of passenger transportation ...(ed) 169, *176, *203
Sugar-making, New cane sugar process. 664
Sugar mill, Primitive type in Panama, (let) 637
Surveys and surveying:
Abandonment of the contract system for public land surveys. By A. B. Bartlett and J. M. Phillips, (lets) 608, 732
Alaska boundary survey, Methods and progress on. By D. W. Eaton ... *495
Astronomy, Text-book on. Eng. Lit. Sup. 35
County surveyors in Illinois, Law establishing incompetent men as surveyors ...(ed) 604
Guaranteeing land surveys ... 610
Hydrographic:
"Distant Point" method for locating soundings. By J. L. Van Ornum and James Logan ...(lets) 139, 265
Manual of. By G. K. Larrison, Eng. Lit. Sup. 72
Ignorant land surveyors and their errors; Where a licensing law is needed. By J. A. Guissinger. (let) 515
Irrigation-lateral construction, Elementary principles of. By F. W. Hanna ... 96
Leveling, Recent work with the precise level instrument of the U. S. Coast and Geodetic Survey. By H. C. Mitchell ... *356
Location and alinement surveys for the Rondout pressure tunnel of the Catskill aqueduct. By A. D. Flinn. *654
Measurement of two primary base lines with invar tapes, U. S. Coast and Geodetic Survey. By William Bowie ... 315
Method of giving centers on old curves without field computation. By J. R. Baylis ...(let) *391

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

Surveys and Surveying:
Methods of finding the width of a stream. By H. A. Kohnhorst. (let) *139
Micrometer alidade and its uses, Topographical surveying. By R. H. Sargent *483
Military topography....Eng. Lit. Sup. 78
Mine surveying:
Coal mine surveying and engineering. By A. T. Shurick........168, (let) 456
Method for keeping notes; Blank forms for. By G. W. Riter........*595
Permanent survey monuments. By R. B. Slippy 728
Plumb bob string knots and catches. (lets) *267, 545, *545
Pocket books containing traverse tables for quarter degrees and distances from 1 to 100..Eng. Lit. Sup., (lets) 18
Relations of isostasy to geodesy, geophysics and geology. By J. F. Hayford *461
Remarkable recovery of old survey marks. By G. B. Zahniser....(let) 637
Reservoir survey made from a barge, Norfolk, Va. By H. V. Joslin.....*693
Sanitary survey of the Ohio River in Pennsylvania. By S. G. Dixon and F. H. Snow 22
Solution of a problem by the use of rectangular coordinates. By B. LeG. Rees (let) *331
Survey of the Northern and Northwestern Lakes.......Eng. Lit. Sup. 74
Topography, French treatise on. French text.............Eng. Lit. Sup. 42
Triangulation, Municipal Bridge location, St. Louis, Mo. By S. W. Bowen 332
Water waste surveys in Chicago, Ill. By T. C. Phillips 260
Swedish Engineers' Society of Chicago, Ill., Annual list of members with portraits and biographical sketches, (ed) 48
Swimming pools, Northwestern University Hypochloride disinfection of indoor tank. By W. L. Lee........ 689
Switches. (See also Frogs; Rails; Track.)

T.

Tanks and standpipes:
Concrete protection coating for a small tank tower *7
Hoops, Wrought-iron versus steel. By H. M. Howe........(ed) 485, (let) 637
Reinforced-concrete:
Partial failure of a large oil reservoir at San Luis Obispo, Cal., *310, (lets) *490
Railway water tank, Specifications for *382
United States Naval Station, Key West, Fla. *492
St. Louis, Mo., Insane Asylum, 200,000 capacity, Elevated steel tank....... *62
Tank roof, Strength of, Method of solution wanted..(n) 109, (lets) 140, 237
Track tanks for supplying water to locomotives, Reports of Committee of the American Railway Engineering Association *410
(See also Gas holders.)
Tapes, Measurement of two primary base lines with invar tapes, U. S. Coast and Geodetic Survey. By Wm. Bowie 315
Tar. (See Pavements; Roads.)
Telephony:
Annual report of American Telephone & Telegraph Co......Eng. Lit. Sup. 84
England, Completion of government ownership 237
Government ownership of telephones in Europe..........Eng. Lit. Sup. 72
Long distance telephone system exhibit at Chicago..............(n) 211
Multiplex telephony patent of Major Squier given to public..........(n) 152
New York to Denver, Colo., communication commercially established. (n) 583
Rates:
First decision of the Interstate Commerce Commission..................(n) 613
New York to Brooklyn rate ordered reduced.........................(n) 709
Reductions in Massachusetts and Maine..........................(n) 741
Recent increases in transmission efficiency of long distance circuits. By B. Gherardi *618
Seattle, Wash., Study of telephone situation; Report by C. H. Judson and F. B. Hall, Engineers 652
Underground trunk lines of the American Telephone & Telegraph Co......*615
Telphers:
Baggage handling system, England, (n) 644
Mechanical handling of freight, baggage and mail matters, Memphis, Tenn. *463
Missouri, Kansas & Texas Ry., St. Louis, Mo., freight terminal........*771
Use for freight handling; railway freight stations. By M. B. Waterman ....*566, erratum 611
(See also Cableways.)
Teredo. (See Piles.)
Terra cotta, Coefficient of expansion of, wanted. By E. K. Ruth.......(let) 791
Testing machines:
Pipe testing machine for large size (30-72-in. diam.) Tests............*225
Portable compression machine with a capacity of 30 tons............(n) 568
Rattler and method of using, Paving brick tests, Design adopted by the Organization of City Officials for Standardizing Paving Specifications *334
Tile pipe testing machine designed at the University of Iowa, By A. O. Anderson *609
Tests and testing:
Bituminous road compounds; Tests of by scale paraffine determination; Value as a test. By A. W. Dow and F. P. Smith *680
Comparative tests of large engine and turbine driven pumps. By Francis Head *562
Crushing tests of old timber..(lets) 49, 172
Crushing strength of old timbers. Australian tests. By W. Pagan....(let) 390
Drain tile and sewer pipe. Standard tests for..............258, (let) *609
Tests and testing:
Efficiency tests of a 1170-ft. steam pipe line 480
Electric wire insulation, National Fire Protection specifications for rubber covered wires 522
Eyebar full-size tests for Pittsburgh, & Lake Erie R. R. bridge at Beaver, Pa. 213
Gravel used in cement tile drains. By A. O. Anderson..........(let) *609
How the work of engineering research and experimental investigation benefits the public................(ed) 387
Hydraulic pressure tests of aluminum-bronze cylinders. By H. C. H. Carpenter and C. A. Edwards.........*376
Impact tests of a reinforced-concrete trestle, Chicago, Milwaukee & St. Paul Ry. By J. H. Prior...........*500
Lap-welded pipe tests showing tensile strength of 60,000 lbs. per sq. in.(n) 119
Load test of a large sand-jack........*26
Municipal testing laboratory proposed in New York City.........521, (n) 677
Pile loading test with lever. By D. C. Webb (let) *172
Purpose and work of the Underwriters' Laboratories. By W. H. Merrill 396
Quick dumping ore car tests...(lets) *266
Roof coverings, Fire tests of; Reports of committee of American Railway Engineering Association 413
Testing laboratory of the Bureau of Standards for structural material at Pittsburg, Pa. 26
Test for galvanized iron to replace the copper-sulphate method. By W. A. Patrick and W. H. Walker 593
Tests of voids in crusher-run stone. By J. R. Taft 26
Trap-rock screenings for percentage of foreign material. By W. S. Lozier. 760
(See also Boilers; Cement; Coal; Concrete; Columns; Beams; Floors; Iron and Steel; American Society for Testing Materials, etc.)
Thermodynamics:
Introduction to the study of. Eng. Lit. Sup. 89
Physical meaning of entropy. By A. L. Menzin 52
Physical significance of entropy. Eng. Lit. Sup. 3
Temperature—entropy diagram. Eng. Lit. Sup. 78
Thermometers, Recording thermometer for lower ranges of temperature, Bristol Co. ....(n) 59
Thermostat for the control of condensing water. By B. Viola *446
Ticket-making machine, Long Island R. R. ....(n) 165
Tie-plates, Pittsburgh & Lake Erie R. R.*110
Ties:
American Railway Engineering Association, Committee reports on........ 383
Asphaltic oils for preservation of railway ties, Results of trials and tests. By F. W. Cherrington....... 122
Electrical resistance of timber ties; Reports of Committee of American Railway Engineering Association.. 411
Keeping records of treated ties, Methods used. By F. J. Angier........ 143
Length of ties, Report of Committee of the Canadian Society of Civil Engineers 150
Metal, concrete and composite ties, Experience with. Report of Block-signal and Train-control Board.... 84
Reinforced-concrete, Newspaper account of a $17,500,000 tie...........(ed) 48
Steel tie for interurban electric railways, Wm. P. Day, inventor, *380 (let) 545
Track fastenings for treated ties; Reports of American Railway Engineering Association 411
Tile; Drain. (See Pipe, Clay.)
Timber:
Electrical resistance of: Report of Committee of the American Railway Engineering Association.... 411
Tests of strength of old timber, Instance of cracking after long service (lets) 49, 172
Tests of strength of old timbers, Australia. By W. Pagan........(let) 390
Timber preservation:
American Railway Engineering Association, Committee report on...... 383
Annual convention of the Wood Preservers' Association 111
Asphaltic oils for preservation of railway ties, with analyses of asphaltic crude oils. By F. W. Cherrington. 122
Creosoted wood blocks, Proper treatment of. By F. D. Beal......(let) 635
Creosoted wood blocks, Timber, Oil, Wearing qualities, etc. By P. E. Green ....474, (let) 635
Damage to telephone and telegraph poles by wood-boring insects 542
Keeping records of treated ties, Methods used. By F. J. Angier........ 143
Marine wood destroyers in the waters of the South Atlantic ports. By W. D. Faucette 12
Observations on the attack of poles by woodpeckers. By H. F. Weiss.*220
Papers at the annual convention of the National Electric Light Association 704
Wood-block pavement, Preservative treatment. By S. Whinery......... 501
(See also Piles.)
Tote, meaning of the verb "to tote," (lets) 390, 488
Towers for electric power transmission, Field construction of a 110,00-volt transmission line *503
Track:
American Railway Engineering Association, Committee reports on track, ballast, rails, etc. 383
Electrical resistance wood ties; Track fastenings for treated ties; Depth of ballast, etc.; Report of Committees of the American Railway Engineering Associations 411
Fiber stresses in rails, Length of ties, etc. Report of Committee of the Canadian Society of Civil Engineers 150
Fire dangers in cinder fill railway embankments. By J. M. Bischoff. (let) 545
Track:
Frog device giving a continuous rail for both tracks, C., B. & Q. Ry....*344
Manganese-steel frog made of rolled rail *345
Relining, Method of giving centers on old curves without field computation. By J. R. Baylis........(let) *391
Standards of the Illinois Traction System *649
Street railway:
Cross-section of streets with car-tracks. By J. G. Clark.......(let) 359
Laying wood paving with cement-grout cushion along street car tracks 57
Tanks in track for supplying water to locomotives, American Railway Engineering Association, Committee reports *410
Tie-plates and track construction on the Pittsburgh & Lake Erie R. R..*110
(See also Frogs, Rails, Switches, Ties, etc.)
Track scales, Scale with a 300,000-lb. capacity with relieving gear and adjustable hump *364
Track signs, Standards of the Illinois Traction System *652
Traction engines:
Development of mechanical traction on roads in Great Britain. By L. A. Legros 531
Drag-line excavator operated by a traction engine, built by the Avery Co.*413
Trade catalogs:
Library of in New York City, Eng. Lit. Sup. 1
Standard sizes for. By Emile Low, (let) 265, (n) 362
Traffic on highways, Method of taking census of, Classification of by different boards and commissions. By A. H. Blanchard and I. W. Patterson 250
Trains:
Fast trains, Pennsylvania special makes record run ....(n) 119
Freight train resistance tests, Eng. Lit. Sup. 13
Increased braking power for freight train. By J. P. Kelly............ 779
Transits:
Micrometer attachment for measuring distances. By R. H. Sargent......*483
Plumb bob string knot, Other devices for holding ....(lets) 267, *545
Transportation:
Comparative resistance to traction of boats and railway trains and effect on costs. By S. A. Thompson. (let) 329
Comparison of rail and water transportation in Europe..Eng. Lit. Sup. 5
Development of mechanical traction on roads in Great Britain........... 531
Electric railways. Annals of American Academy of Political and Social Science ....Eng. Lit. Sup. 38
Engineering and economic results of the commercial motor vehicle.... 762
Explosives. (See explosives.)
Freight haulage within cities must be furnished by railways in Ohio..(n) 768
London, England, Traffic Studies by Commission. H. R. Wilson......... 438
Montauk Point, L. I., Proposed terminal for transatlantic steamers. (ed) 263
Motor trucks for construction work and commercial haulage purposes...... *750, (ed) 762
Passing of the waterway boom..(ed) 264
Pittsburg, Pa., Reports of B. J. Arnold on the improvement of rapid transit facilities..(ed) 169, *176, *203
Police administration of public vehicles in Havana, Cuba.............(let) 390
Problems of passengers and freight terminals in great cities. By F. A. Delano ....25, (let) 108
Railroad traffic and rates.Eng. Lit. Sup. 83
Railway station service, Freight and passenger rates, tickets, way bills, etc. ....Eng. Lit. Sup. 77
St. Paul and Minneapolis, Minn., Union station problem. By G. H. Herrold 535
Solution of problem on construction work 38 miles from railway, Azischos dam, Maine...(ed) 297, (let) 390
(See also Electric railways; Railways; Subways; Water transportation, Waterways.)
Travelers, Kentucky River High Bridge, Description of erection methods and travelers. By H. H. Starr *518
Treasury Construction Society, Proceedings of ....Eng. Lit. Sup. 61
Trestles:
Comparative costs of concrete and wooden trestles, Discussion, American Railway Engineering Association 385
Pile and slab trestle of reinforced-concrete, Chicago, Indiana & Southern Ry. *123
Reinforced-concrete, Impact test on trestle; Chicago, Milwaukee & St. Paul Ry. By J. H. Prior.........*500
Triangles. (See Drawing instruments.)
Triangulation. (See Surveys and surveying.)
Trigonometry, Problem given in a civil service examination, Time required for solution. By C. E. Harris (let) *545
Trimetric cross-section paper. By Arthur Schultz *404
Trusses, Riveted trusses of short span replacing pin-connected trusses, Observations on recent bridge construction in America. By H. S. Jacoby 598
Trusts, Decision of the U. S. Supreme Court in the Standard Oil Co. case ....(eds) 603, 633
Tubing, Development and treatment of locomotive boiler tubes. By F. N. Speller *611
Tungsten, Production of in the United States in 1910..............(n) 119
Tunnel lining, Rondout pressure tunnel of the Catskill aqueduct, New York. By A. D. Flinn..................*656
Tunnel timbering, Cornelius Gap tunnel, Oregon. By W. P. Hardesty......*782
Tunnels and tunneling:
Boston, Mass., Proposed highway tunnel between Boston and East Boston, Mass. ....(n) 224
Buffalo, N. Y., Water-works intake tunnel and crib, Construction details. By C. M. Hollingsworth.....*153
Catskill aqueduct, New York, Rondout pressure tunnel, Methods of construction, etc. By A. D. Flinn.... *339, *654
Cementation of wet ground; Method used in France ....(n) 664
Chicago, Ill., La Salle street:
Accident, Old masonry falls and kills two men, May 3..........(n) 583
Partial failure of cofferdam...(n) 59
Rebuilding tunnel under the Chicago River *52
Sinking the tubes for the river section across the Chicago River 461, (n) 493
Denver, Northwestern & Pacific Ry., Proposed four-mile tunnel in Colorado, Bill in Legislature to give State aid (ed) 453
Hoosac tunnel, Boston & Maine R. R., Establishment of electric traction, Description of *694
Loetschberg tunnel in Switzerland. By E. L. Corthell *1
Loetschberg tunnel in Switzerland holed through on March 31....(n) 434
Los Angeles, Cal., aqueduct tunnel, 10-A Little Lake Division, Progress on. By C. H. Richards.................*748
New York City, Pressure tunnel for water-supply to be built under Manhattan Island, Difficulties of (ed) 570, 582
Newhall tunnel, Los Angeles County, Cal., Road Tunnel..............*632
Pont Mirabeau crossing of the Seine, Metropolitan subway, Paris, France *590
Shaft sinking, Fast record of on the Catskill aqueduct ....(n) 464
Strawberry Valley Irrigation Project: Heavy water-flow encountered. By J. L. Lytel ....(let) *391
Progress of work ....(n) 523
Switzerland, Lengths of Alpine railway tunnels, and altitudes of summits (n) 181
United Rys., Ore., Cornelius Gap tunnel. By W. P. Hardesty.........*782
Ventilation of long railway tunnels. By Rudolf Heine.................*252
(See also Aqueducts.)
Turbines:
Hydraulic:
Design and installation..Eng. Lit. Sup. 24
Pacific Coast Power Co., Two 20,400-HP. turbines ....(n) 59
Type characteristic of turbines, Its application to entire water power plants. By N. Baashuus *248
Water turbine plant, English treatise. Eng. Lit. Sup. 22
Steam:
Comparative tests of large engine and turbine-driven pumps. By Francis Head *562
Comparison of installations on warships in the U. S. Navy. By H. I. Cone 33
Design and construction of... Eng. Lit. Sup. 28
Experience with geared marine turbines in England 638
French text-book on..Eng. Lit. Sup. 13
Geared turbine in an English steel mill, 750-HP. 639
Geared turbines of the U. S. collier "Neptune," 4,000-HP. each.........*638
Multi-stage 1,000-HP. De Laval Turbine with speed reducing gear....*428
Steam engine and other heat engines Eng. Lit. Sup. 66
Typhoid fever:
Lexington, Va.; Epidemic evidently caused by leaks from sewer to water mains. By A. W. Freeman and Richard Messer.............*498, (ed) 513
Montreal, Que.:
Apparent effect of water disinfection on winter outbreak. By J. O. Meadows ....(let) 80
Expected outbreak ....(ed) 17
Ottawa, Ont.:
Epidemic in January, 1911, Causes of. By P. H. Bryce 362
Outbreak due to use of temporary intake near shore of river......(n) 214
Report of Dr. C. A. Hodgetts, Expert of the Ontario Conservation Commission ....(n) 677
Pennsylvania, Sanitary survey of the Ohio River, Statistics of Pittsburg and other cities. By S. G. Dixon and F. H. Snow. 22
Report on the typhoid bacillus "carrier," U. S. Public Health and Marine Hospital Service. Eng. Lit. Sup. (ed) 49
Researches on water storage and pathogenic germs ....Eng. Lit. Sup. 35

U.

United States Bureau of the Census, Cost of field work in 1910.....(n) 272
United States Bureau of Mines:
Automatic resuscitating machine for mine rescue work *414
Chemical laboratories of. By J. K. Clement 63
Experimental coal mine for the study of gas and dust explosions. By G. S. Rice 436
Mine fires, Causes, prevention and fighting of. By H. M. Wilson.......... 672
United States Bureau of Standards, Testing laboratory on structural materials at Pittsburg, Pa. 26
United States Coast and Geodetic Survey:
Measurement of two primary base lines with invar tapes. By William Bowie 315
Recent work with precise level instrument. By H. C. Mitchell............*356
United States Geological Survey:
Micrometer alidade and its uses for taking topography. By R. H. Sargent *483
Topographical maps issued in 1910, Eng. Lit. Sup., 43, 61

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

United States Reclamation Service:
Review of work by Board of Army Engineers ....(ed) 137, 146, (ed) 265, (let) 265
Roosevelt dam, Salt River Project to be formally opened ....(n) 243

V.

Vacuum cleaners, Vacuum cleaning of schoolhouses............Eng. Lit. Sup. 79
Valves:
Design of a 110-in. gate valve with curved side plate. By Phil de Clamecy ....(ed) 488, (lets) *488, 573
Improved valve and high pressure pipe joint, Osborne patent *553
Vautelet, H. E., resigns from Board of Engineers for the Quebec bridge... 271
Ventilation. (See Heating and Ventilation.) Subways. (See Subways.) Tunnels. (See Tunnels and Tunneling.)
Viaducts:
Dallas and Oak Cliff, Texas, Reinforced-concrete, 5,106 ft. long............*392
Denver, Colo., new street viaducts, 20th St. and 23d St............*8
Kansas City, Mo., Main St. steel arch viaduct over O. K. Creek valley. By Kenneth Hartley *440
San Luis Rey, Cal., Reinforced-concrete arch viaduct with separately-molded members *460
Vital statistics:
Lack of in the United States......(ed) 327
United States not represented at the International Hygiene Exhibition at Dresden ....(ed) 665
Volcanoes, Eruption of Mt. Taal, P. I., Jan. 30-31 ....(n) 151

W.

Wages, Premium plan of paying for labor, Practical details of. By Clinton Alvord 292
Walls and bins:
Grain elevator with reinforced-concrete bins, Fort William, Ont., Grand Trunk Pacific Ry............*221
Oil Reservoir, Partial failure of large reinforced-concrete reservoir wall at San Luis Obispo, Cal............*310
Partial failure of tile and concrete grain bin, Fort William, Ont......*76
War or peace, an argument against wars and armaments......Eng. Lit. Sup. 53
Warships:
Appropriations for two new battleships, (n) 307
Armor plate, Simpson weld for....(n) 459
Balloon guns for Krupp manufacture. By F. P. Mann............*452
"Delaware," Eplosion of water-tube boilers blows out back headers, Jan. 17. Report of Board of Inquiry........(n) 88, (n) 277, (let) 396
Full power trials of battleships. By H. I. Cone 36
"Maine":
Army engineer plan for raising, Design of cofferdams for very deep water ....(lets) 50, *51, *108
Estimate of the cost of raising the wreck in Havana Harbor.......(n) 277
Raising wreck in Havana Harbor, Newspaper account of method..(n) 237
Work of raising, Second appropriation by Congress ....(n) 307
Cofferdam about the wreck, Failure of closing piles of two cylinders.(n) 583
Progress in raising wreck in Havana Harbor ....*143, (n) 465, *612
Pumping out cofferdam in Havana Harbor ....(n) 709, (n) 769
Submarine torpedo boats, Wireless telegraph outfits for ....(n) 218
U. S. Navy, Recent engine-room developments, Engines vs. turbines. By H. I. Cone 33
Washers, Economical design to take the place of cast or forged angle washers. By F. R. Steuart........(let) *50
Washington, D. C.; Proposed Lincoln memorial monument ....(n) 180
Water analyses:
Camp Perry, Ohio, National Rifle Range, Results of slow sand filtration. By R. W. Pratt............ 758
Interpretation of 734
London, England, Results of chemical and bacterial examinations of water supply ....Eng. Lit. Sup. 24
Why absolute bacterial standards for potable water are impracticable. By H. C. H. Shenton............ 666
(See also Sewage analysis.)
Water consumption. (See Water meters; Water waste.)
Water famines:
New York City; Threatened famine and emergency supplies. (n) 434, (let) 607, (eds) *604, 634
Chicago, Ill., No pressure to supply portions of city............(ed) 789
"Water-finders," Experiments with in England ....(n) 311
Water mains:
Apparatus for applying disinfectants under pressure..........*619, (let) 764
Cast-iron, Methods of casting......(ed) 729
Cause of internal corrosion of hot water pipes. By J. M. Falkenburg, *347, (ed) 358, (lets) 516, 517
Cement-lined and covered wrought-iron pipe for use in salt water. By G. W. Priest............(let) *516
Comparative merits of steel and cast-iron. By Allen Hazen............736
Concrete, Reinforced-concrete pressure pipe for irrigation ...poses, Umatilla Project, Oregon. By H. D. Newell *208
Leadite for calking joints............ 735
Salt ground, What is the best kind of pipe for? ......(lets) 203, 331, *516
Steel, Durability of welded steel pipe. By F. N. Speller....347, (ed) 358, (lets) 516, 517
Steel, Riveted steel intake pipe, What is the life of?............(let) 488
Steel vs. cast-iron for city water mains, Portland, Me., decision in favor of cast-iron ....(ed) 633
Water mains:
Tapping into a 10-in. water main under 130 lbs. pressure in very cold weather ....(n) 27
(See also Pipe; Pipe lines.)
Water meters:
Current meter form for measuring the flow in large pipe lines. By R. M. Hosea ....*642, (let) 732
New York City:
Necessity of; Mayor Gaynor on. By H. W. Star............(let) 765, (ed) 789
Need of installation to prevent water waste. By W. H. Herschel, (let) 669, (ed) 697
Waste-detection and meter work in the New York City Water Department. By E. W. Bemis, 39, (ed) 48, (lets) 201
Objections to on private fire mains for factories 732
Venturi meters of wood for large pipe lines 732
(See also Water waste.)
Water pollution:
Belfast, Ireland, Relation of sea lettuce to sewage disposal........(n) 475
Hackensack River, New Jersey State Board of Health's orders to stop pollution ....(n) 462
Healthy homes and summer resorts. Eng. Lit. Sup. 44
Lexington, Va., Epidemic of typhoid fever evidently caused by leaks from sewer into water mains. By A. W. Freeman and Richard Messer ....*498, (ed) 513
New York State, Proposed new state commission to deal with sewage disposal ....(ed) 665
Ohio River contamination, Bill to prevent drafted by the Ohio River Sanitary Commission ....(n) 119
Oklahoma City, State sanitary zeal and ignorance concerning water-supply and sewage purification. By Alexander Potter ....(let) 267
(See also Sewage disposal.)
Water power:
Congressional commission to investigate development urged by the National Electric Light Association ....(n) 189
Farm and country use of water power, Eng. Lit. Sup. 29
Financial possibilities of hydro-electric developments in the Central West. By P. M. Lincoln............*692
Hudson River dam project at Troy, N. Y., Controversy over. (n) 583, (ed) 604
Hydro-electric practice..Eng. Lit. Sup. 74
New York State:
Conservation of water powers, Facts about the Troy dam case......(ed) 604
Reasons for public development and control 211
Waterproofing. (See Concrete; Floors; Masonry, etc.)
Water purification:
Algae and other organisms, Effect of light on ....Eng. Lit. Sup. 35
Atlanta, Ga.; Mechanical filtration plant enlarged to 21,000,000 gals. capacity ....(n) 123
Baltimore, Md.:
Filtration of chemical treatment recommended by a grand jury..(n) 661
Operating costs and qualitative results of slow sand and mechanical filters. By S. T. Powell............*532
Camp Perry, Ohio, National Rifle Range, Slow sand filters. By R. W. Pratt *758
Chemical disinfection............(let) 80, (ns) 212, 307, *399, *402, *619, 689
Des Moines, Ia., Hypochlorite treatment ....(n) 212
England, Researches on water storage and pathogenic germs.Eng Lit. Sup. 35
Erie, Pa., Hypochlorite treatment..(n) 212
Hypochlorite of lime or other disinfectants applied to water under pressure, Device for.....*619, (let) 764
Lake waters, Need of purification. By Rudolph Hering ....(let) 490
Mechanical filtration:
Atlanta, Ga., plant enlarged to a capacity of 21,000,000 gals............(n) 123
Baltimore, Md., Operating costs and qualitative results of slow sand and mechanical filters. By S. T. Powell *532
Milwaukee, Wis.; Recommended by commission of engineers.......(n) 644
Minnesota State Board of Health, Portable hypochlorite water-disinfecting plant. By J. A. Childs and H. A. Whittaker *402
Modern methods of......Eng. Lit. Sup. 68
Montreal, Que., Apparent effect of water disinfection on winter typhoid fever. By J. O. Meadows, (let) 80
Niagara Falls, Ont., Temporary hypochlorite plant ....(n) 307
Northwestern University, Hypochlorite disinfection of indoor swimming pool. By W. L. Lee............*689
Oklahoma City, State sanitary zeal and ignorance with reference to water-supply and sewage purification. By Alexander Potter ....(let) 267
Omaha, Neb., Water treatment by coagulation sedimentation and hypochlorite disinfection. By F. H. Marshall *399
Papers at American Water Works Convention 734
Potableness; Why absolute bacterial standards for potable water are impracticable. By H. C. H. Shenton. 666
Reading, Pa.; Construction of the Maiden Creek slow sand filters. By Mandes Golder *525
Slow sand filtration:
Baltimore, Md.; Operating costs and qualitative results of slow-sand and mechanical filters. By S. T. Powell *532
Camp Perry, Ohio, National Rifle Range. By R. W. Pratt. 758
Reading, Pa.; Construction of the Maiden Creek filters. By Mandes Golder *525
Toronto, Ont.; Description of plant. By F. F. Longley.........*302, (n) 333
Water rates:
Determination of a reasonable return for public fire hydrant service. By Metcalf, Kuichling and Hawley... 737
Discussion at American Water Works Convention 733
Water-supply:
Akron, Ohio, Suit against the Akron Water Works Co., by the City of Akron ....(n) 277
Athens, Greece, Plans for public water-supply 415
Boston, Mass., High-pressure fire protection system advised by the National Board of Fire Underwriters. (n) 503
Buffalo, N. Y.; Construction details of water-works tunnel and intake. By C. H. Hollingsworth *153
Camp Perry, Ohio, National Rifle Range. By R. W. Pratt............*758
Chicago, Ill., Lack of pressure to supply parts of city............(ed) 789
Illinois Water Supply Association, Annual meeting 273
Illinois; State inspection and analysis of public water supplies on an extensive scale ....(n) 747
Indiana Sanitary and Water Supply Association meeting 210
Locomotive water-supply from track tanks, Specifications of the American Railway Engineering Association *410
London, England:
Results of chemical and bacterial examinations........Eng. Lit. Sup. 24
Storage reservoirs to be constructed, (n) 151
Los Angles, Cal. (See Aqueducts.)
Massachusetts Metropolitan District, Apportionment of cost of construction and maintenance. By J. A. Holmes ....218, (let) 268
Milwaukee, Wis.; Radical changes recommended by commission of engineers ....(n) 644
Multi-control of water-works by state boards in New York and other states ....(ed) 169
New York City:
Certainty of water waste and its effect on the quality of water stored in reservoirs. By Robt. Fletcher, (let) 764
Emergency supply in case of threatened water famine..(eds) *604, 634, 665, (lets) 607, 669, 700
Law regarding the control of waters crossing state boundaries; Housatonic River as a source of supply. By C. F. Randolph.(ed) 665, 670, (let) 700
Mayor Gaynor for an inexhaustible supply............(let) 765, (eds) 765, 789
Rainfall not yet sufficient for filling reservoirs ....(ed) 762
Ten Mile River supply not impossible, (ed) 696
Ten Mile River, Proposed source, Photographs showing amount of flow *705
Threatened shortage ....(n) 434
Waste-detection and meter work of the Water Department. By E. W. Bemis............39, (ed) 48, (lets) 201
Waste, Introduction of water meters and water and health conservation (ed) 697, (let) 764
(See also Aqueducts.)
New York State:
Proposed new state commission to study Niagara River conditions of water pollution ....(ed) 665
Water storage on state lands in the Adirondacks authorized ....(n) 622
Ottawa, Ont.:
Cause of typhoid fever outbreak, Report of Dr. C. A. Hodgetts....(n) 677
Typhoid fever epidemic and relation to water supply. By P. H. Bryce. *362
Philippine Islands, Increasing use of artesian wells ....(n) 452
Relation of intake conduits to purity of lake water. Cost and comparison of long and short intakes. By C. B. Burdick ....385, (let) 490
Right to take underground water out of New Jersey into New York denied by courts ....(n) 397
Water tanks. (See Tanks and standpipes.)
Water transportation:
Comparative resistance to traction of boats and railway trains, Effect on transportation costs. By S. A. Thompson ....(let) 329
Comparison of rail and water transportation in Europe....Eng. Lit. Sup. 5
Great Lakes, Decrease in commerce of. (n) 793
Lakes-to-the-Gulf Deep Waterways:
Report of special board of engineers (n) 243, (ed) 264
Report of Board of Engineers on Illinois section 269
Marine commerce of the harbors of Duluth and Superior in 1910..(n) 210
Morris Canal, New Jersey, Proposed abandonment of....(n) 243, (ed) 264
Our inland seas.........Eng. Lit. Sup. 89
Panama Canal and the Tehuantepec Ry. of Mexico as a competitor.. (ed) 77, (let) 455
Paris, France, as a seaport, Proposed deepening of the Seine.........(n) 76
Passenger and freight terminals in large cities, Comparison of rail and water transportation. By F. A. Delano ....25, (let) 108
Passing of the waterway boom....(ed) 264
Philadelphia, Improvement of port facilities 198
Statistics of American shipping, 1909-10 ....(ed) 544
Suez Canal, Traffic through in 1870 and 1910 ....(n) 449
Water waste:
American and English per capita water consumption compared ....(ed) 137
Chicago, Ill.:
Surveys to determine waste and leakage. By T. C. Phillips.......... 260
Water famine from lack of presure. (ed) 789
Waste waste:
New York City:
Certainty of, Its effect on the quality of water stored in reservoirs. By Robt. Fletcher ....(let) 764
Prevention of in view of water shortage. By W. H. Herschel ....(let) 669
Threatened shortage and waste prevention ......(eds) 634, 697, (let) 764
Waste-detection and meter work in the New York City Water Department. By E. W. Bemis 39, (ed) 48, (lets) 201
(See also Water meters.)
Waterways:
Lake Erie to Ohio River project revived ....(ed) 762
National Waterways Commission to serve two years longer............(n) 243
Proposed inland waterway from Boston Harbor to Narragansett Bay...(n) 629
Straits crossing problem in California and at Boston, Mass..........(n) 224
(See Canals; Harbors; Rivers; Water transportation.)
Water wheels, High-head high-efficiency impulse wheels built in Switzerland (n) 317
Water-works:
Akron, Ohio, Suit of the city against the Akron Water-Works Co.....(n) 277
Determination of a reasonable rate for public fire hydrant service. By Metcalf, Kuichling and Hawley......... 737
American Water Works Association, Proceedings.........Eng. Lit. Sup. 14
American Water Works Association, Convention 732
Catasauqua, Pa., Right to build and operate water-works affirmed by State Supreme Court............(n) 523
Multi-control of water-works by state boards in New York and other states (ed) 169
Water-works intakes:
Buffalo, N. Y., Construction details of water-works tunnel and intake. By C. H. Hollingsworth *153
Relation of intake conduits to the purity of lake water. Comparative costs of long and short intakes. By C. B. Burdick ....385, (let) 490
Steel Pipe, What is the life of?...(let) 488
Weighing scales. (See Scales.)
Weirs:
Flow of water over dams, Discharge coefficients for. By G. S. Williams *38, (ed) 47
Porous foundations, Best types of dams, barrages and weirs for. erratum 52, (lets) 108
Porous foundations with pervious floors, Weir construction for. By W. G. Bligh *444
Tests being conducted at Cornell University to find flow of water over sharp crested weirs............(n) 564
Welding:
Best way to show a weld in cross-section in a drawing. By C. F. Gailor (let) *574
Oxhydric process for cutting and welding metal............*508
(See also Iron and steel.)
Wells:
Artesian, Increasing use of in the Philippine Islands ....(n) 452
Experiments in locating water with "water-finders" in England ....(n) 311
Methods of drilling wells..Eng. Lit. Sup. 75
Westinghouse Electric & Manufacturing Co.; Annual report to stockholders (ed) 761
Wharves and docks:
Argentina, Large contracts let to English firms ....(n) 769
East Boston, Mass., Electrically operated grain elevator and wharf conveyor *417
Freight handling installations for rivers subject to great variations in level. By G. C. Scherer ......*539, (let) 669
Kobe Harbor, Japan, Improvement of port facilities. By H. McL. Harding 261
Light timber bulkhead at the Key West, Fla., Naval Station. By D. C. Webb *451
Marine wood destroyers in the waters of the south Atlantic ports. By W. D. Faucette 12
Montauk Point, L. I., as a terminal for steamships ....(ed) 263
New York City:
Development of the city's water terminals. By Calvin Tomkins..(let) 457
Proposed extensions to accommodate new White Star steamers. Decision of War Department. By W. H. Bixby (eds) 47, 297, 300, 366, (let) 457
Ore handling pier at Port Richmond, Pa. ....(n) 180
Reinforced-concrete hollow caissons floated into place in piers, Kobe Harbor, Japan *647
Reinforced-concrete ore dock at Marquette, Mich. ....(n) 237
Steel and concrete dock wall; Renewal of the south end of Dock No. 10, Ashtabula Harbor, Ohio. By Chas. Benham, Jr. *592
(See also Freight handling; Railway terminals.)
Wire, Rubber covered electric wire, Specifications of the National Fire Protection Association. 522
Wireless telegraphy:
Principles of electric wave telegraphy and telephony ......Eng. Lit. Sup. 23
Submarine torpedo boat equipments (n) 218
Wood distillation, Bulletin by Forestry Service ....Eng. Lit. Sup. 44
Woodpeckers, Observations on the attack of poles by woodpeckers. By H. F. Weiss *220
Wood Preservers Association, Annual convention 111
Writing:
Guide to technical writing. Eng. Lit. Sup. 6
Good engineering literature. Eng. Lit. Sup. 81

Z.

Zinc tailings as concrete aggregate..(n) 777

(n) = note, (ed) = editorial, (let) = letter, * = illustrated article, † = inset sheet.

INDEX TO ILLUSTRATIONS.

A

Abutments:
Bridge abutment failure, Little Wabash River, Illinois 212
Bridge abutments; Diagrams of cubic contents and costs 190
(See also Piers.)
Air compressors; contractor's plants 472
Air filter and cooler for compressor intake 474
Air receiver and aftercooler, contractor's compressed air plant 473
Alaska, Boundary survey 495
Aluminum-bronze test cylinders 376
Angle for replacing angle washer, structural work 50
Aqueducts:
France, Pont du Garde 309
New York water supply, Rondout pressure tunnel, Catskill aqueduct 654
Arch centering:
Monroe St. Bridge, Spokane, Wash. 546
Steel truss centering, Rocky River, Ohio, bridge 722
Suspended centering, Aylett's method 719
Arch hinges, Reinforced-concrete arch 460
Arches:
Bamboo arch highway bridge, Java, Dutch East Indies 195
Concrete arch bridge at Hummelstown, Pa. 103
Pont du Garde aqueduct, France 309
Reinforced-concrete bridge, San Luis Rey, Cal. 460
Reinforced-concrete bridge, Chickahominy River, Va. 720
Reinforced-concrete viaduct, Dallas and Oak Cliff, Texas 394
Roof arch, Live-stock pavilion, Dallas, Texas 728
Spokane, Wash., Monroe St. Bridge 547
Steel arch bridge over O. K. Creek, Kansas City, Mo. 441
Steel arch roof, 22d regiment Armory, New York City 61
Through reinforced-concrete bridge 196
Artillery for aerial warfare, Krupp balloon guns 452
Automatic block signals 622
Automatic resuscitating machine for mine rescue 414

B

Balloon guns, Krupp 452
Balloon sheds:
France, military balloon sheds 166
Germany, Take-down types 25
Bangor, Me., Map of fire-swept area 569
Barge for making hydrographic survey 693
Bascule lift street crossing of an overhead carrier-track system 507
Beams:
Cantilever bridge of the Pittsburgh & Lake Erie R. R. 92
Reinforced-concrete, Baltimore "News" Building 432
Reinforced-concrete affected by electrolysis 686
Bearings:
Derrick with inclined mast 130
Roller-journal bearing, Beaver, Pa., Bridge 89
Bins; Fort William, Ont., grain bin failure 76
Blocks; Large six-sheave pulley block 22
Blower; Design for increased efficiency 558
Blue printing machine, automatic machine making white prints also, C. F. Pease Co. 57
Blue printing machine with washing and drying device 784
Boiler test curves, Marine boiler 510
Boiler tube test specimens, Lap-welded steel 611
Boilers:
Electrically heated boiler for train heating 82
Lignite burning boiler, Reclamation service 353
Locomotive; Flexible boiler, Mallet duplex articulated compound 480
Water-tube rebuilt for oil firing, Consolidated Gas-Electric Light Power Co. 749
Boston, Mass., Map showing rapid transit development 100
Breakwater, Steel form for concrete masonry 777
Brick testing machine, Rattler 334
Bridge accident, Little Wabash River, Ill. 212
Bridge renewal, Rowlesburg, W. Va., Baltimore & Ohio R. R. 272
Bridges:
Baltimore & Ohio R. R., Renewal of old trusses 272
Bamboo arch highway bridge, Java, Dutch East Indies 195
Breslau, Germany, Steel plate cable suspension bridge 435
Chickahominy River, Va., Reinforced-concrete arch 720
Curious timber bridge built by Indian policemen 265
Dallas and Oak Cliff, Texas, Reinforced-concrete viaduct 392
Denver, Colo., 20th and 23rd St. viaducts 8
Drawbridge, Straight lift span, Portland, Ore. 279
Highway bridge designs 390
Hummelstown, Pa., Concrete arch 103
Kansas City, Mo., Steel arch 441
Kentucky River, High Bridge 518
New York Central & Hudson River R. R., New York City 165
Pend Oreille River, Idaho & Washington R. R. 46
Pittsburgh & Lake Erie R. R., Beaver, Pa. 90
Portland, Ore., Hawthorne Ave. 279
Quebec:
Designs for new bridge .... †484
Diagrams of tests of nickel-steel 526
St. Louis, Mo., Municipal Bridge 320
San Luis Rey, Cal., Concrete viaduct 460
Short-span I-beam and concrete 629
Spokane, Wash., Monroe St. 547
Telephone conduit crossings 617
Through reinforced-concrete arch 196
Brooklyn, N. Y., Showing Fourth Ave. Subway 224
Brown, Alexander E. 549
Buildings:
Armory of the 22nd Regiment, New York City 61
Asch Bldg., New York City 396, 458
Baltimore "News" reinforced-concrete building, Tearing down 431
Bradley Knitting Co., Milwaukee, Wis. 675
Chamber of Commerce Bldg., Cincinnati, Ohio, after fire 121
Henke Bldg., Cleveland, Ohio, after collapse 240
Missouri, Kansas & Texas Ry. freight station, St. Louis, Mo. 771
National Lead Co., St. Louis, Mo. 727
New York Central R. R. storage battery house, New York City, after explosion 174
Packing house of reinforced-concrete damaged by electrolysis 684
Quincy, Mass., Fore River Shipbuilding Co. 504
Railway stations, Illinois Traction System 649
United Shoe Machinery Co., Reinforced concrete 725
Bulkheads:
Light timber construction, Key West, Fla. 451
Steel and concrete, Ashtabula Harbor, Ohio 592

C.

Cable railway, Seattle, Wash. 282
Cableway, Concrete plant, Panama Canal 183
Caissons:
Hauserlake Dam, Mont., Foundations 746
Hollow concrete, Kobe Harbor, Japan 647
Municipal Bridge, St. Louis, Mo. 321
Pneumatic muck ejector 261
Tunnel sections, Paris subways 590
Camera for photo-topographic work, Alaska boundary survey 497
Canals:
Chicago, Ill., North Shore drainage canal 14
Panama:
Concrete work on Gatun locks 183
Profile showing progress 425
Slides of earth 571
Cars:
Automatic concrete cars, Panama Canal 185
Dump car mounted on trucks with inside bearings 512
Dumping chute for gondola cars 765
Gasoline electric-motor car, Buffalo, Rochester & Pittsburg R. R. 551
Quarry stone car 31
Quick-dumping ore cars, Mechanism of 266
Cattle chute, Illinois Traction System 651
Cattle guard, Illinois Traction System 652
Cement; Diagrams of chemical combinations 351
Cement grinder with steel rods for grinding 58
Cement separating machine, Moodie "Selector" 191
Chicago, Ill.:
North Shore drainage canal 14
Subway plans 226
Chutes, Dumping chute for gondola cars 765
Coal and ashes pocket, Reinforced-concrete 406
Coaling station, Electrically operated 676
Cofferdams:
"Maine," Havana Harbor 612
Steel piling for 50
Steel sheet-pile cofferdam with steel tie bars 332
Suggestion for sheet pile cofferdam 108
Columns:
Bridge columns on concrete pile foundations 165
Cross-sections of nickel-steel columns, Quebec Bridge design 529
Details of reinforcement, Concrete column tests 228
Diagrams of strength of columns of various materials 161
Footings, Bending moment in 329
Steel, for elevated water tank 63
Compressed-air pipe line, Dunwoodie, N. Y. 473
Compressed-air plants 472
Concrete construction with the "Ransome Unit System" 724
Concrete construction plant, Bradley Knitting Mills 674
Concrete electrolysis test blocks 687
Concrete forms:
Jack and yoke for supporting and raising forms for circular bins 223
Reinforced-concrete pressure pipe 208
Rondout pressure tunnel, Catskill aqueduct 655
Steel forms, Buffalo, N. Y., Waterworks intake tunnel 159
Steel forms, Gatun Lock, Panama Canal 187
Concrete guard rail for rural roads 128
Concrete handling tower, Sweetwater Dam, San Diego, Cal. 374
Concrete mixing plant, Gatun Locks, Panama Canal 183
Concrete reinforcement:
Condition of, Baltimore "News" Bldg. 433
Corrosion of by electrolysis 684
Corrugated plates fastened with wire 292
Standpipe of 1,500,000 gals. capacity 492
Sweetwater Dam, San Diego, Cal. 372
Tests of in columns 228
Concrete tables and tanks, Purdue University 241
Condensers, Apparatus for tests of heat transmission in surface condensation 162
Condensers used in making distillation tests of paraffine 683
Conduits; Underground telephone trunk lines 616
Contour lines, Interpolating 329
Conveyors:
Freight handling plant for rivers with great variations in level 539
Tomkins Cove Stone Co. 30
Cranes:
Electric jib crane with weighing attachment 775
Hook with safety closing device 565
Cranes:
Results of dynamiting a 300-ft. gantry crane 438
Special bridge crane for handling short-span concrete bridges 629
Telpher for freight house service 568, 775
Culvert, Upper Chenab Canal, India 587
Culvert standards, Illinois Traction System 652
Current meter for measuring flow of water in large pipes 642
Curves, Methods of giving centers on old railroad curves 391

D.

Dams:
Aziscohos, Maine, Concrete 288
Charles River, Boston, Mass. 284
Cross-sections of overflow dams 38
European dams with siphon spillways 468
Genesee River, N. Y., Proposed 316
Hauserlake, Mont., Foundations 743
Morris dam, Waterbury, Conn. 342
New York State Barge Canal, Emergency dam 778
Oakland, Cal., Central reservoir, People's Water Co. 15
Sheet piling for foundations of 109
Sweetwater dam, San Diego, Cal. 369
Types of dams for porous foundations with pervious floors 444
Derricks:
Hand-operated swinging derrick for building construction 230
Inclined mast derrick designed by Eric Swensson 130
Diagrams:
Boiler tests with lignite fuel 354
Bridge abutments, Contents and costs 190
Cement, Chemical combinations of 351
Compressive strength of columns of different materials 161
Contour line interpolating 329
Cost of power, Gatun power plant, Panama Canal 187
Diesel engines; Indicator cards and torsion moment diagrams 625
Efficiency of steam shovels on the Panama Canal 426
Engine-driven and turbine-driven pumps, Relative costs 563
Engineering News' formula for safe load on piles 139
Extent to which a pole can be hollowed by birds without decreasing its strength 220
Financial and operating results of street railways in American cities 206
Growth of population in American cities 205
Incidence of typhoid fever cases, Lexington, Va. 498
Isostatic condition of the Earth 462
Load-compression diagram for sand-jack 26
Nickel-steel model column tests 530
Nickel-steel tests for Quebec Bridge 526
Muskingum River, Ohio, Average run-off 692
Organization and rates of pay, Gatun power plant, Panama Canal 187
Population and water supply of New York City 605
Procedure to secure a co-operative drainage system, So. Dakota 374
Progress of excavation, Panama Canal 426
Quality of water from slow-sand and mechanical filters 532
Quantity of water required for cities of different sizes 737
Rainfall and storage of New York City reservoirs 605
Rate of heat transfer and temperature difference, Condenser tests 163
Sewage purification, Imhoff tank 16
Steam engine indicator, reducing motions 478
Strength of cement briquettes 787
Stresses in steel-built columns 324
Temperature record during the construction of the Henke Building 239
Tests of marine steam boiler 510
Tracks at Hawes Junction, England, Scene of accident on the Midland Ry. 102
Typical locomotive wheel loads, Western Maryland Ry. 104
Value of coefficients for Kutter's formula 610
Water power plant dimensions 249
Ditching machinery 217
Drag-line excavator operated by a traction engine 413
Drainage ditches, So. Dakota 375
Drawing instruments:
Adjustable triangle 167
Improved parallel straight-edge 98
Dredges:
Dipper dredge for ditch excavation 218
Dry land excavator dredge 318
Drills:
Diamond core-drills on the Hudson River crossing of the Catskill Aqueduct 340
Drill-bit for 24-in. holes 593
Traction rock drill for 5-in. holes 600
Dumping chute for gondola cars 765

E.

Earth handling devices, Jamaica and Panama 636
Ejector, Pneumatic, Caisson foundation work 261
Electric generator, Gasoline-electric motor car 552
Electric railway signals and automatic stops 620
Electric railways:
England; London, Brighton & South Coast Ry. 679
Seattle, Wash., Counterweight system for steep grades 282
Washington Water Power Co.'s lines 620
Electric steam boiler for train heating 82
Electric transmission tower erection 503
Electrification of the Hoosac (Mass.) tunnel 694
Electric railway, Ore., Cornelius Gap tunnel, United Rys. 782
Elevated railway, Proposed West St. line, New York City 448
Endicott, Mordecai T. .... †136
England; Map of portion showing the London, Brighton and South Coast Ry. lines 680
Excavating machinery 215, 318
Explosions:
Jersey City, N. J., Wreckage caused by explosion Feb. 1 173
New York City, New York Central R. R. storage-battery house 174

F.

Filtration plants:
Camp Perry, Ohio, Water supply and sewage 758
Reading, Pa. 525
Toronto, Ont. 302
Fire department apparatus, Motor vehicles 754
Fires:
Ascne Building, New York City 396, 458
Chamber of Commerce Building, Cincinnati, Ohio 122
Floor-beams:
Breslau, Germany, Suspension bridge 436
Pittsburgh & Lake Erie cantilever bridge 92
Floor framing for St. Louis freight station of the Missouri, Kansas & Texas Ry. 773
Floor-slab details, Steel and bridge, Kansas City, Mo. 442
Floor slabs, "Ransome unit system," Reinforced concrete 724
Floors; Timber floor construction for reinforced-concrete factory buildings 504
Forests, Montana and Idaho, burned over areas 635
Foundations:
Derrick with inclined mast, cruciform subsurface foundation 132
Elevated water tank of 200,000 gals. capacity 62
Hauserlake Dam, Mont. 747
Steel form for filling with concrete 777
Foundry, Pipe works of James B. Clow & Sons 711
Freight-handling apparatus:
Layouts for railway freight stations 566
Memphis, Tenn., Telpher system 463
Storage-battery truck 564
(See also Cranes, etc.)
Freight-handling plant for rivers subject to great variations in level 539
Fritch, Louis C. .... †136
Frogs:
Device giving a continuous rail for both tracks 344
Wing rails of manganese-steel 345

G.

Gaging car, U. S. Geological Survey, Stream measurements 247
Gas and oil engines:
Engine-generator set of gasoline-electric motor car 552
Indicator cards and torsion moment diagrams of Diesel engines 624
Gas producer, Oil-fuel, 400-HP. 591
Gate house, Morris dam, Waterbury, Conn. 342
Gatun Locks, Panama Canal 184
Gear-cutting machine 632
Gears:
Helical gear and pinion for a 1,200-HP. steam turbine 429
Reduction gears, 4,000-HP. steam turbine 638
Working drawings for 631
Grain elevators:
East Boston, Mass., Electrically operated 417
Fort William, Ont., Partial failure 76
Fort William, Ont., Grand Trunk Pacific Ry. 221

H.

Harbors:
Havana, showing progress of work on "Maine" 143, 612
Kobe, Japan, Hollow concrete caissons 647
Hoisting machine, Eight-spool hoist for foundation work 133
Hunt, Charles Wallace 416
Hydrator for hydrating lime 554

I.

India, Irrigation works 585
Insulators, Hoosac tunnel electrification 696
Iron, Curious examples of wear from car wheels 490
Irrigation works, India 585

J.

Jacks:
Jack and yoke for supporting and raising forms for circular concrete bins 223
Large sand-jack 26
Jackson, Dugald C. .... †136

K.

Kutter's formula, Diagram of coefficients for 610

L.

Laboratories; Toronto water purification 306
Lamp posts:
Denver, Colo., 20th St. Viaduct 11
Reinforced-concrete poles 256
Landslides, Panama Canal 571
Lathe for removing shrinkage head on cast-iron pipes 715
Levels, U. S. Coast and Geodetic Survey precise level 356
Lexington, Va., Location of typhoid-fever cases 498
Lime hydrating machinery 554
Locomotive water tanks for tracks 410
Locomotives:
Compressed-air, Loetschberg Tunnel, Switzerland 491
Contrast in 491
Determination of radius-bar length and swing of truck 578, 700
Gasoline industrial locomotives 20
Largest locomotive in the world 548

Locomotives:
Mallet articulated for passenger service, Santa Fe lines 482
Mallet duplex articulated compound with flexible boiler 480
Mallet duplex compound 6
Mechanical stoker used on the Pennsylvania R. R. 450
Typical wheel loads, Western Maryland R. R. 104
Logway, Aziscohos dam, Maine 290

M.

Manholes, Concrete; Underground telephone trunk lines 615
Maps:
Alaska boundary 496
Australia, Portion of railway from Sidney to Bourke 379
Bangor, Me., Fire-swept area 569
Boston, Mass., Rapid Transit developments 100
Buffalo, N. Y., Water-works intake 154
Chicago, Ill., Proposed subways 226, 489
Colorado River, Work of repairing break into Imperial Valley 99
England, Portion showing London, Brighton and South Coast Ry. lines 680
Genesee River, N. Y., Proposed reservoir system 316
Hudson River water front of New York City 447
Lake Erie, Buffalo water-works intake 154
Land drainage area near Louisville, Ky. 42
Lexington, Va., Typhoid-fever district. 498
Loetschberg tunnel, Switzerland 2
Minnesota, showing run-off of streams. 536
New York City, showing proposed extension into harbor 576
New York City, Water supplies 606
Oregon, Part showing Cornelius Gap tunnel 782
Ottawa, Ont., Water supply intake 363
Paris, France, Subway system 71
Pittsburg Pa., Relief map of street railway system 178
Punjab, India 589
Sacandaga River drainage area, New York 246
St. Paul and Minneapolis, Minn. 535
Section of New Jersey coast showing method of making soundings 140
Size and shapes of American cities 204
Switzerland, showing Loetschberg tunnel 2
Western Maryland Ry. 104
Marine speedometer invented by F. B. Sanborn 540
Mechanical stokers, Pennsylvania R. R. 450
Meier, E. D. .... †136
Micrometer attachment for alidades and transits 483
Micrometer gage for measuring deadload stresses in structural parts 352
Mine-rescue resuscitating apparatus 414
Molding machine for concrete paving cubes 129
Molding machine for cast-iron pipe 712
Motor cars, Gasoline-electric, Buffalo, Rochester & Pittsburgh R. R. 551
Motor dump wagons 751
Motor trucks for commercial use 753

N.

New York City, Hudson River front 447
New York City, Proposed extension 576
New York City, Water supplies 606

O.

Oil-fired boiler, Diagram of piping 749
Oxyhydric process of welding 508

P.

Paris, France, Subway system 71
Pavement with 2-in. concrete cubes 128
Photographs showing common defects in photography 408
Pier foundation of steel form filled with concrete 777
Piers; Municipal Bridge, St. Louis, Mo. 323
Piles:
Concrete piles in drilled holes 165
Diagram for use with Engineering News formula 139
Over-driven piles, Brooklyn, N. Y., subway 224
Testing load applied with lever 172
Piling:
Around the "Maine" 143, 612
Steel sheet-piling cofferdam with steel tie-bars 332
Steel sheet-piling for cofferdams .. 50, 108
Pipe:
Cement-lined and covered wrought-iron pipe 516
Corroded hot-water pipes 347
Pipe:
Reinforced-concrete pipe for pressures. 208
Reinforced-concrete pipe, Toronto, Ont., purification plant 304
Pipe casting at plant of James B. Clow & Sons 711
Pipe fittings, Aluminum-bronze 376
Pipe-molding machine, Herbert 712
Pipe-testing machine for drain tile 609
Pipe unions, High-pressure pipe joint 553
Pitot tube marine speedometer 540
Pittsburg, Pa., Relief map of street railway system 178
Plane-table alidade with micrometer attachment 483
Planimeter, an easily understood one 51
Plate girders:
Concrete covered, Dallas and Oak Cliff, Tex., viaduct 395
Street viaducts, Denver, Colo. 10
St. Louis, Mo., freight station 773
Plumb bob string fastener 546
Plumb bob string knot 267
Poles, Reinforced-concrete electric lamp poles 256
Power plants:
Emergency rope drive 313
Gas power plant, Holton Power Co. 591
Gatun Locks, Panama Canal 188
Hydraulic:
Diagrams illustrating determination of dimensions of plant 249
Largentiere, France 467
Steam; Portales, N. Mex., Pumping plant 192
Profiles:
Hudson River at Storm King 339
La Salle St. tunnel, Chicago, Ill. 55
Loetschberg tunnel, Switzerland 2
Panama Canal showing progress 425
Rondout pressure tunnel, New York water supply 654
Western Maryland R. R. cut 608
Pulverizing machinery, Cement mill with steel rods for grinding 58
Pumping plants:
Portales, N. Mex., Irrigation project 192
Rondout pressure tunnel, Catskill Aqueduct 659
Torresdale plant, Philadelphia, Pa. 562
Pumps; Centrifugal relay pumps, Gatun power plant, Panama Canal 188
Punjab, India, Irrigation works 585

Q.

Quarries, Tomkins Cove Stone Co. 29

R.

Rails:
Anti-creeping device 111
Frog giving continuous rail on both tracks 344
Frog with rails of manganese steel 345
Railway coal and ash pocket 406
Railway curves, Method of giving centers on 391
Railway construction on the Western Maryland Ry. 608
Railway electrification, Hoosac tunnel, Mass. 694
Railway freight station layouts 566
Railway freight station of the Missouri, Kansas & Texas Ry. at St. Louis, Mo. 771
Railway stations, Illinois Traction System 649
Railway terminal track plan 415
Railway terminal, Proposed Hudson River terminals, New York City 449
Railway tool house, Illinois Traction System 652
Railways:
Australia, Portion of line from Sydney to Bourke 379
Automatic, Concrete materials, Panama Canal 185
Western Maryland R. R., Map of 104
Rattler machine for testing paving bricks 334
Reel used in alinement, Rondout pressure tunnel 654
Reservoirs:
Barge used for survey of 693
Genesee River, N. Y., Proposed 316
Map of proposed Sacandaga reservoir, New York 246
Morris reservoir, Waterbury, Conn. 343
Oakland, Cal., Central reservoir of the People's Water Co. 15
Oil reservoir, San Luis Obispo, Cal. 310, 490
Omaha, Neb., Settling reservoirs 399
Retaining walls:
Diagrams and formulas for 757
Oil reservoir, San Luis Obispo, Cal. 310, 490
Reinforced-concrete, St. Louis Railway freight station 773
Special designs, Chicago, Milwaukee & St. Paul Ry. 470
Rivers:
Hudson, N. Y., Cross-section at Storm King Mountain 339
Sacandaga, near Hadley, N. Y. 245
Ten Mile, N. Y. 705
Rivet testing machine 41
Riveted joints, nickel steel 526
Riveting, Diagrams of moments 19
Roads:
Concrete railing for 128
Section of, surfaced with 2-in. concrete cubes 128
Rock-crushing plants:
Acton Rock Co., Los Angeles, Cal. 688
Tomkins Cove, N. Y. 29
Roofs:
Steel arch, 22nd Regiment Armory, New York City 61
Steel arch, Dallas, Tex. 728
Rope drive for emergency use in power plant 313

S.

Safety self-closing crane hook 565
Safety set-screw 511
Sand-jack, Load test of 26
Scales; Track scale of 300,000 lbs. capacity 364
Screens; Tomkins Cove Stone Co. 35
Separating machine, Moodie "Selector". 191
Separator in compressed-air pipe line. 473
Set-screw, Safety patent 511
Sewage purification works, Camp Perry, Ohio 758
Signal system for electric railways 621
Siphons:
Rondout pressure tunnel, Catskill aqueduct, New York 654
Spillways in Europe 467
Section through projected siphon, Punjab, India 589
Slide rule, Barth's, for spur gear design 630
Sluice gate, Emergency dam, New York Barge Canal 778
Smoke washer for chimney gases 255
Speedometer for motor boats 540
Spikes, Screw-spikes, Pittsburgh & Lake Erie R. R. 110
Spillways, Siphon spillways in Europe .. 468
Steam engine indicator reducing motions 478
Steam engine of simple beam type converted into compound and triple expansion 43
Steam generator, electrically heated for train heating 82
Steam shovel, Revolving, for sewer trench work 37
Stone crushing plants:
Acton Rock Co., Los Angeles, Cal. 688
Tomkins Cove, N. Y. 29
Storage-battery trucks for package freight 564, 760
Street lamps, Denver, Colo. 11
Subways:
Chicago, Ill., Proposed 226
New York City:
Brooklyn, Fourth Ave. extension 224
Proposed Eleventh Ave. 449
Survey barge used for reservoir survey. 693
Survey method of locating soundings 140
Surveying instruments and boundary monuments, Alaska 497
Surveying notes for mine survey 595
Surveying width of a stream 139
Surveying problem solved by coordinates 331
Switch; Motor-operated for telpherage system 776
Switchboards for control of electrically operated grain elevator 418
Switzerland, Loetschberg tunnel 3

T.

Tanks and standpipes:
Design for reinforced-concrete railway water tank 382
Elevated tank of 200,000 gals. capacity 62
Oil reservoir, San Luis Obispo, Cal. 310, 490
Reinforced-concrete standpipe, Key West, Fla. 492
White Bluff, Tenn., Tank tower protected by concrete 7
Telephone phantom repeating coils 618
Telephone cable, Boston-Washington, Cross-section of 619
Telephone underground trunk line construction 615
Telphers; for freight station service. 568, 775
Test train for impact tests of reinforced-concrete trestles 500
Testing machines:
Alternating-stress tests 526
Pipe testing, large sizes 225
Tile, drain pipe 609
Thermostat for control of condensing water 446
Tie plates, Pittsburgh & Lake Erie R. R. 110
Ties; Steel, for electric interurban lines 380
Tomkins Cove, N. Y., Stone crushing plant 34
Torches, Oxy-hydrogen, Metal cutting 508
Towers for electric transmission lines 503
Track scale of 300,000 lbs. capacity 364
Track sign standards, Illinois Traction System 653
Track tanks for locomotives 410
Traction engine motor vehicle 754
Traction engine with drag-line excavator attachment 413
Traction rock drill for 5-in. holes 600
Transits, Photo-topographic instrument. 497
Travelers, Erection of Kentucky High Bridge 521
Trenching machinery 215, 616
Trestles:
Concrete pile and slab trestle, Chicago, Indiana & Southern Ry. 123
Reinforced-concrete, Chicago, Milwaukee & St. Paul Ry. 500
Trigonometrical problem 545
Trimetric cross-section paper 404
Trucks for freight handling 564, 760
Trusses:
Cantilever, Telpherage system 463
Wreck of Gantry crane by dynamite .. 438
Wreck of roof trusses, Chamber of Commerce Bldg., Cincinnati 122
Tunnels:
Buffalo, N. Y., Water-works intake 154
Chicago, Ill., La Salle St. 52
Cornelius Gap, Ore., United Rys. 782
Hoosac, Mass., Electrification of 694
Loetschberg, Switzerland 1
Newhall, Los Angeles Co., Cal. 632
Pont Mirabeau crossing of the Seine, Paris 590
Rondout pressure tunnel, Catskill aqueduct, New York 654
Strawberry irrigation tunnel 391
Tauern, Austria, Sections 252
Ventilation of 252
Turbines:
Runners of different types of radial inward-flow turbines 248
Steam:
Multi-stage single-geared De Laval. 428
Westinghouse 4,000-HP. with reduction gear 638
Typhoid fever diagram, Lexington, Va. .. 498

V.

Valves:
Design of a 110-in. gate valve 488
Diaphram-operated, for control of condensing water 446
Protector device to prevent cutting of the seats 553
Viaducts:
Dallas and Oak Cliff, Tex. 392
Denver, Colo., 20th and 23rd Sts. 8
Kansas City, Mo., O. K. Creek 440
San Luis Rey, Cal. 460

W.

Warship "Maine," Work of raising .. 143, 612
Water disinfecting device for applying chemicals under pressure 619
Water gages for showing loss of head, Slow sand filtration 759
Water purification works:
Camp Perry, Ohio, Filter beds 758
Omaha Water Co. 400
Portable hypochlorite plant 402
Reading, Pa. 525
Toronto, Ont. 302
Water tanks. (See Tanks and standpipes.)
Water-works intake, Buffalo, N. Y. 153
Wedges for lowering bridge on bearings. 272
Weirs, Types of, for porous foundations with pervious floors 444
Weld, Method of showing in cross-section 574
Welding torches, Oxy-hydrogen 508
Wharves and docks:
Boston & Albany R. R., East Boston .. 417
Freight handling apparatus 539
Hudson River water front 447
Kobe, Japan, Hollow concrete caissons for 648
Steel and concrete dock wall, Ashtabula Harbor, Ohio 592
Wreck, Central R. R. of New Jersey, Jersey City 173
Wheel, Motor truck 755

INSET SHEETS.

Concrete making plant, Panama Canal, Opposite 183
Presidents of engineering societies 136
Quebec Bridge designs 484
Typical details, Pittsburgh & Lake Erie R. R. at Beaver, Pa. 89
Concrete making plant at the Gatun Locks, Panama Canal 183
Portraits of the Presidents of the national engineering societies 136
Quebec bridge plans 484
Typical details of the Pittsburgh & Lake Erie R. R. bridge at Beaver, Pa. .. 89

AUTHOR INDEX.

A.

Abbott, E. R., 333, 545; Adams, C. R., 124; Agg, T. R., 253; Aldrich, H. L., †134; Alger, P. R., 497; Allen, H. A., 108; Alvord, Clinton, 292; Anderson, A. H., *558; Anderson, A. O., *258, *609; Anderson, E. C., 545; Andrews, D. M., 390; Angier, F. J., 143; Arnold, B. J., 176, *203, *226; Arthur, H. E., *728; Aylett, Philip, *717.

B.

Baashuus, N. *248; Bach, F. W., 5; Baker, M. N., 346; Baker, Ned, 387; Ball, C. B., 709; Bartlett, A. B., 608; Baylis, J. R., *391; Beal, F. D., 635; Bemis, E. W., 39; Benham, Charles, *592; Bensel, J. A., 171; Bilger, H. E., *190; Bird, P. B., 262; Bischoff, J. M., 545; Bisset, G. A., *630; Bixby, W. H., 366; Blanchard, A. H., 250; Bligh, W. G., 109, *195, *444, *589, 701; Boehm, William H., †134; Boughton, W. H., *272; Bowen, S. W., *320; Bowers, H. M., 360; Bowie, William, 315; Brackett, Dexter, 268; Braslow, Barnett, 515; Bridgman, J. N., 390; Brockett, N. W., 16; Brown, H. P., *684; Brown, S. P., *224; Bryce, P. H., *362; Buck, R. S., 361; Burdick, C. B., 385; Burgess, C. F., 356; Burr, F. L., 50.

C.

Campbell, J. L., 265; Carpenter, H. C. H., *376; Carter, F. H., 599; Case, B. H., 268; Cherrington, F. W., 122; Childs, J. A., *402; Clark, J. G., 359; Clarke, G. W., 515; Clement, J. K., 63; Clemo, A. W., 202; Clinton, S. D., 319; Coates, F. R., †136; Cone, H. I., 33; Cooper, D. R., *245; Corthell, E. L., *1, 172; Covert, C. C., *245; Cox, J. S., Jr., 705; Cunningham, A. C., †134; Cunningham, W., 669; Cushman, A. S., 516, 523.

D.

Daily, C. M., *212; de Clamecy, Phil, *488, 573; Delano, F. A., 25, 108; de Varona, I. M., 201; Ditto, Joseph, *545; Dixon, S. G., 22; Doerfling, R. G., *329; Dow, A. W., 680; Dunn, W. B., 277; Durham, H. W., 575.

E.

Eaton, D. W., *495; Edwards, C. A., *376; Eliot, W. G., 574; Elliott, C. G., 269; Evans, W. A., 280.

F.

Faucette, W. D., 12; Falkenburg, M. J., *347, 517; Ferguson, A. H., 300; Fielding, John S., *109; Fisher, W. L., 673; Fletcher, Robert, 764; Fleming, David, 108; Flinn, A. D., *339, *654; Follansbee, R., *536; Foote, A. DeW., 236; Francis, G. B., 361; Francis, John, 488; Franklin, William, 332; Freeman, A. W., 498; French, H. E., 330; Friedland, Jacob, 490; Frink, F. G., 701; Fuller, G. W., 476.

G.

Gailor, C. F., *574; Gardner, H. A., 636; Gardner, L. H., 139; Gast, E. A., *196; Gaynor, W. J., 765; Gerig, W., 332; Gherardi, B., *618; Godfrey, Edward, 108, 455, 490; Golder, Mandes, *525; Goodrich, W. F., 348; Green, P. E., 475; Griffin, R. S., 397; Guissinger, J. A., 515.

H.

Hall, C., 785; Handley, H. L., 202; Hanna, F. W., 96; Hansen, Paul, *42; Hardesty, W. P., *279, *782; Harding, H. McL., 261, 610; Harger, W. G., *128; Harris, C. E., *545; Harrison, E. W., 422; Hartley, Kenneth, *440; Hatt, W. K., 172, *241; Hatton, T. C., 331; Hayden, A. G., *19; Hayford, J. F., 461; Hawley, W. C., 737; Hazen, Allen, 736; Head, Francis, *562; Heer, William, Jr., 669; Heine, Rudolf, *252; Hering, Rudolph, 50, 299, 423, 490, 506, 607, 663; Herrold, G. H., *535; Herschel, W. H., 577, 669; Higgins, C. H., *51; Hoffman, Robert, 126; Hollingsworth, C. H., *153; Holmes, J. A., 218, *284; Hooker, S. P., 171; Hooper, G. K., 139; Hoover, C. B., 311; Hosea, R. M., *642; Howard, J. E., *161, *324; Howard, J. E., 697; Howe, H. M., 637; Hughes, L. S., 273; Hunt, Engene, 202; Hutton, F. R., *416.

J.

Jackson, W. B., 442; Jacob, T. N., 132; Jacobs, G. S., *15; Jacobs, Joseph, 360; Jacoby, H. S., 428, 598; Janin, Charles, 95; Jeffrey, S. L. *407; Johnson A. N., 132; Johnson, A. S., 574; Jones, A. L., 3; Joslin, H. V., 693.

K.

Kelly, J. P., 779; Kennedy, P. F., *546; Kent, William, 108, 790; Kershaw, J. B. C., *255; Kittridge, H. C., 330; Koenig, A. C., 690; Kohnhorst, H. A., *139; Kotze, R. N., 479; Kreisinger, Henry, *358; Kuichling, Emil, 737; Kupferberg, B. A., 430.

L.

Lagerquist, W. E., 563; Langhead, B. M., *608; Lawrence, C. M., 52; Lee, Ernest E.,

*183; Lee, H. R., *313; Lee, M. L., *267; Lee, W. L., 689; Legros, L. A. 531; Leslie, Sir Bradford, 499; Lewis, F H., 699; Lincoln, P. M., *692; Lindenthal, Gustav, 517; Locke, J. C., 268, 488; Lockwood, D. C., 667; Logan, James, *139; Longley, F. F., *302; Lord, A. R., 50; Low, Emile, 265, 792; Lozier, W. S., 760; Ludin, Adolph, *467; Lytel, J. L., *391.

M.

MacIsaac, F. J., *332; Maclaurin, R. C., 491; Macnichol, Charles, 636; Mann, F. P., *452; Markwart, A. H., 329; Marshall, F. H., *399; Marston, A., 258; Martin, J. S., 266; Martin, K. L., 517; Mason, W. P., 75; Matthews, T. B., *265; McCullough, Ernest, 50, 140, 545; McDaniel, A. B., *374; McKay, G. A., *743; McKeen, A. H., 409; McMurray, S. M., 237; Meade, R. K., *554; Meadows, J. O., 80; Menas, T. H., 390; Mees, C. A., 701; Menline, Isaac, 332; Merrill, W. H., 180. 386, 664; Messer, Richard, 498; Metcalf, Leonard, 737; Middleton, Jefferson, 502; Miles, G. F., 636; Milinowski, A. S., *139; Miller, A. N., 140; Milton, J. T., 623; Mitchell, H. C., *356; Moulton, S. A., *288; Moyer, Albert, 180; Mugnier, R., 48; Myers, E. A., 541; Myers, P. H., 373.

N.

Nellis, F. M., 58; Newbrough, W., 235, 300; Newell, H. D., *208; Newton, D. S., 299; Newton, G. C., *674; Ninde, W. E., *578; Nolen, John, 643; Norris, Henry H., †135; Northrup, A. A., *635.

O.

Orrok, G. A., *162.

P.

Pagan, W., 390; Paige, J. F., 776; Park, C. H., *15; Patrick, W. A., 593; Patterson, I. W., 250; Pearl, J. W., 50, 237; Perkins, A. H., *316; Phillips, J. M., 732; Phillips, T. C., 260; Pinney, J. C., Jr., *438; Potter, Alexander, 267; Powell, S. T., *532; Pratt, M. D., *103, 331; Pratt, R. W., *758; Priest, G. W., *516; Prior, J. H., *470, *500.

R.

Randall, D. T., *358; Randolph, C. F., 670; Reed, C. O., 24; Rees, B. LeG., 331; Rhodes, R. F., *329; Ribeiro, Oscar, 203; Rice, G. S., 436; Rice, G. W., *636; Richards, C. H., 748; Richards, Frank, 330, *472; Ricketts, P. C., 668; Rightmire, E. D., 166; Riter, G. W., *595; Robb, L. A., *309; Robinson, A. S., *489; Robinson, W. R., 49; Rombauer, E. R., 101; Ruth, E. K., 791.

S.

Sabin, A. H., 551, 636; Sabin, L. C., *256; Sanborn, F. B., *540; Sargent, R. H., *483; Saunders, W. E., 277; Saurbrey, Alexis, *238, *724; Saville, Charles, 237, 663; Schaefer, Frederic, 266; Schildhauer, Edward, *183; Schultze, Arthur, *404; Schuyler, J. D., *369; Seager, J. A., *478; Segur, A. B., *585; Shenton, H. C. H., 666; Shepherd, E. S., *350; Scherer, G. C., *539; Sherman, L. K., 150; Shurick, A. T., 456; Slippy, R. B., 728; Smith, F. E., *455; Smith, F. P., 680; Snow, F. H., 22; Snow, W. P., 49; Speller, F. M., 347, 517, 611; Spencer, A. C., 705; Sprague, F. J., 420; Starr, H. H., *518; Starr, H. W., 765; Stegner, C. M., *121; Stern, E. W., 269; Steuart, F. R., *50; Stevens, J. C., 701; Stucki, O., 507; Swensson, Eric, *130; Sylvester, I. W., 455.

T.

Taft, J. R., 26; Taft, William H., 146; Talbot, H. P., 469; Talati, A. M., 515; Taylor, W. D., 559, 764; Thompson, S. A., 329; Thomson, T. K., *576; Tomkins, Calvin, 457; Torrance, W. M., 80; Tratman, E. E. R., *215; Trautwine, J. C., Jr., 610; Turneaure, F. E., 456; Turner, C. A. P., 236, 291, 301.

V.

Van Ornum, J. L., 265; Van Winkle, F., 791; Vaughn, Z. N., 787; Viola, B., *446.

W.

Wagner, H. A., *748; Walker, W. H., 503; Waterman, M. B., *566; Watson, W. J., *722; Weaver, H. C., *700; Webb, D. C., *172, *451; Weiss, H. F., *220; Weston, W. E., *756; Wetherill, R. W., *406; Whinery, Samuel, 471, 501; Whitmore, E. R., 401; Whittaker, H. A., *402; Whitten, R. H., *70; Williams, A. D., 700; Williams, G. S., *38; Wilson, F. P., 283, 696; Wilson, F. W., *504; Wilson, H. M., 672; Wilson, H. Raynar, 102, 438, *679; Winslow, C.-E. A., 418; Wisewell, F. H., 764; Woodbridge, D. E., 706; Woods, R. P., *192.

Y.

Young, C. G., 141; Young, F. C., 764, 786.

Z.

Zahniser, G. B., 637; Zuckerman, S. G., *51.

ENGINEERING LITERATURE (SUPPLEMENT).

EDITORIALS.

Contributing editors of the Bulletin of the North Carolina Board of Health. 49
New Civil Engineer's Pocket Book...... 1
Notable library of trade publications... 1
Overlate municipal reports............. 49
Putting a price on the publications of technical institutions 49

CORRESPONDENCE.

Convenient method of indexing and filing current engineering literature. By Del Mar and Pratt.................. 18
Correct name and author of an engineer's pocketbook wanted. By Elmer Leufest 2
Forthcoming bibliography of bibliographies of engineers and scientists. By E. H. McClelland................ 1
Literary gems from municipal reports. By F. I. Winslow...............1, 18
More about card indexing. By W. B. Rawson 1
On defining the degree of curvature in railway surveying. By Robinson, Stradling and Lavis................ 17
On making civil engineer's pocketbooks. By J. C. Trautwine, Jr., and J. C. Trautwine, 3rd 33
On some points in the review of Raymond's "Field Geometry." By F. Lavis 1
Pocketbooks containing traverse tables for quarter degrees and distances 1 to 100 18
Suggested improvement in engineering handbooks. By F. I. Winslow...... 18
Uniformity and economy in the physical make-up of engineering literature. By M. R. Hull................. 49

BOOKS REVIEWED.

A.

Accidents, Bulletin of the U. S. Bureau of Labor. Pub. Doc............... 18
Aeronautics, Vehicles of the Air, Victor Lougheed 71
Aeroplane, The. T. O'B. Hubbard...... 56
Aeroplanes, Principles and Design of. Herbert Chatley 71
Amalgamation and Practical Stamp Milling. H. W. MacFarren......... 10
American Civil Engineer's Pocket Book. 19
American Economic Review............ 51
American Public Health Association, Journal of 30
American School Building Standards. W. T. Mills...................... 75
American Society for Testing Materials. Proceedings 44
American Telephone & Telegraph Co., Annual Report 84
American Water Works Association. Proceedings 14
American Year Book.................. 36
Analysis of Paints and Painting Materials. H. A. Gardner............ 43
Anschuetz Gyro Compass.............. 85
Application of Arc Lamps to Practical Purposes. Justus Eck............ 53
Art-Crafts Lamps. J. D. Adams....... 38
Association for Standardizing Paving Specifications. Proceedings 55
Astronomy, Text-Book on Practical Astronomy. G. L. Hosmer........... 35
Austin Dam, The. T. U. Taylor........ 83
Aviation, Birdflight as the Basis of. Otto Lilienthal 71

B.

Baumaschinen, Die 13
Backbone of Perspective. T. U. Taylor. 30
Bacteriological and Enzyme Chemistry, Introduction to. G. J. Fowler....... 53
Birdflight as a Basis of Aviation. Otto Lilienthal 71
Block Signal and Train Control Board. Third Annual Report, 1910. Pub. Doc. 50
Boynton, Geo. B., The War-Maker. Horace Smith 79
Bridge Engineering, History of. H. G. Tyrrell 84
British Government, Peers and Bureaucrats. Ramsey Muir.............. 54
Building Construction. Beresford Pite and others 40
Building for Profit. R. P. Bolton....... 69

C.

Care of Trees in Lawn, Street and Park. B. E. Fernow..................... 36
Cement, Chemistry and Testing of. C. H. Desch 37
"Cement Age" and "Concrete Engineering" combine 27
Cement and Concrete Users, Popular Hand Book for. M. H. Lewis....... 43
Chemistry, Elementary, for Coal-Mining Students. L. T. O'Shea............. 58
Chemistry, Introduction to Bacteriological and Enzyme Chemistry. G. J. Fowler 53
Chemistry, Municipal. Charles Baskerville 22
Chemistry and Testing of Cement. C. H. Desch 37
Chrysotile-Asbestos. Fritz Cirkel........ 74
City Charters, Loose-Leaf Digest of Short Ballot Charters. C. A. Beard. 56
City Plan for Rochester. A. W. Brunner and others 40
City Planning and the Problems of Congestion 42
Civil Engineer's Pocket Book, The American 19
Civil Government, Readings in. P. L. Kaye 30
Coal, Spontaneous Combustion of. S. W. Parr and F. W. Kressmann...... 82
Colorado, State Engineer's Report...... 77
Comparative Vitality of "Uncultivated" and "Cultivated" Typhoid Bacilli in Artificially Infected Raw Water, With Special Reference to the Question of Storage. A. C. Houston..... 35
Compressed Air.—Theory and Computations. E. G. Harris............... 7
Compressed Air Plant. Robert Peele... 7
Concrete Bridges, General Specifications for. W. J. Watson................ 13
Concrete Houses and Cottages.......... 43
Concrete Worker's Reference Books. A. A. Houghton 79
Conflict Between Individualism and Collectivism in a Democracy. C. W. Eliot 25
Conservation by Sanitation. E. H. Richards 51
Conservation of Our National Water Resources. W. R. Baldwin-Wiseman. 44
Conservation of Water. J. L. Mathews. 27
Constructeur de Cerfs-Volants.......... 83
Continuous Current Machine Design. William Cramp 26
Copper Smelting, Practice of. E. D. Peters 82
Cost of Our National Government. H. J. Ford 76
Cours de Mechanique. L. Guillot....... 88
Crane Construction, Electric. C. W. Hill 86
Current Railway Problems. S. O. Dunn. 54
Cyanide Practice, More Recent. H. F. Bain 10

D.

Dam, The Austin (Tex.). T. U. Taylor. 83
Denudation and Erosion in the Southern Applachian Region and the Monongahela Basin. L. C. Glenn.......... 40
Department of Health of the City of New York, Monthly Bulletin........ 51
Descriptive Geometry, Elements of. A. E. Church 87
Descriptive Geometry, Engineering. F. W. Bartlett 42
Dictionary of English and Spanish Technical and Commercial Terms. William Jackson 83
Disposal and Purification of Factory Wastes or Manufacturing Sewage. H. W. Clark...................... 44
Drainage, State Drainage Work in Minnesota, 1908-10 37
Drills, Rock Drills.—Design, Construction and Use. E. M. Weston....... 2
Drop Forging, Die Sinking and Machine Forming of Steel. J. V. Woodworth. 88
Drying Machinery and Practice. T. G. Marlow 42
Dudley, Charles Benjamin, Life and Work of 84
Dust and Its Dangers. T. M. Prudden.. 40
Dynamischen Wirkungen der Wellenbewegung auf die Langsbeanspruchung des Schiffskorpers. I. F. Horn.. 14

E.

Efficiency in Railway Work, Securing. H. Emerson 27
Einfuehrung in die Rationelle Methode der Beobachtung im Flussbau. C. Krischan 82
Eisenbetonpraxis. E. Nicolas.......... 58
Electric Crane Construction. C. W. Hill. 86
Electric Motors.—Continuous, Polyphase and Single-Phase. H. M. Hobart.... 11
Electric Railway Transportation. E. R. Johnson 38
Electric Trains. H. M. Hobart......... 67
Electrical Engineering, Principles of. Harold Pender 14
Electricians' Operating and Testing Manual. H. C. Horstmann and V. H. Tousley 23
Electricity, Elements of, for Technical Students. W. H. Timbie............ 26
Elektrotechnische Winke fuer Architekten und Hausbeisitzer. L. Bloch und R. Zaudy.................... 37
Elementary Chemistry for Coal Mining Students. L. T. O'Shea............ 58
Elementary Manual of Statistics. A. L. Bowley 35
Elementary Practical Mechanics. J. M. Jameson 58
Elements of Descriptive Geometry. A. E. Church 87
Elements of Electricity for Technical Students. W. H. Timbie........... 26
Elements of Graphic Statics and of General Graphic Methods. W. L. Cathcart 33
Elements of Mechanics. G. W. Parker. 58
Encyclopedia of Municipal and Sanitary Engineering 59
Engineering Abstracts 24
Engineering Descriptive Geometry. F. W. Bartlett 42
Engineering Index Annual for 1910..... 56
Engineering Law. Alexander Haring... 51
Engineering Literature, Good. Harwood Frost 81
Engineering Mathematics. C. P. Steinmetz 33
Entropy, Physical Significance of, or of the Second Law. J. F. Klein....... 3
Entropy, Temperature—Entropy Diagram. C. W. Berry............... 78
Ericsson, John, Life of. W. C. Church. 57
Essential Features of the Geology of the Philippine Islands. W. D. Smith... 84
Eucalyptus, California, Utilization of. H. S. Betts and C. S. Smith......... 14

F.

Factory Wastes or Manufacturing Sewage, Disposal and Purification of. H. W. Clark 44
Fire Resistance of Floors. E. O. Sachs. 84
Forest Policy. C. A. Schenck.......... 89
Forscherarbeiten auf dem Gebiete Eisenbetons. Gerhard Neumann.......... 82
Foundry Practice, Text-Book of Elementary. W. A. Richards............. 12
Franchises, Municipal. D. F. Wilcox.. 69
Freight Train Resistance. E. C. Schmidt. 13

G.

General Specifications for Concrete Bridges. W. J. Watson............. 13
Geologist, Vermont, State Report. G. H. Perkins 79
Geology of the New York City (Catskill) Aqueduct. C. P. Berkey...... 70
Geology of the Philippine Islands. W. D. Smith 84
Geology for Engineers. R. F. Sorsbie.. 60
Gettysburg—Pivotal Battle of the Civil War. R. K. Beecham............. 69
Gewoelbe, Ueber Mehrfache Elastische. W. Schachenmeier 57
Gold Production and Future Prices. H. H. Brace 62
Good Engineering Literature. Harwood Frost 81
Government, The Cost of Our National Government. H. J. Ford........... 76
Government Ownership of Railways. A. Van Wagenen 8
Graphic Statics and General Graphic Methods, Elements of. W. L. Cathcart 33
Greening Pictorial System of Landscape Gardening. C. E. Greening......... 60
Guide to Reading in Social Ethics and Allied Subjects 76
Guide to Technical Writing. T. A. Rickard 6
Gyro Compass, The Anschuetz......... 85

H.

Handbook for Heating and Ventilating Engineers. J. D. Hoffman.......... 8
Healthy Homes and Summer Resorts. Robert Fletcher 44
Heat. J. O. Gordon................... 38
History of Bridge Engineering. H. G. Tyrrell 84
Homestead: The Households of a Mill Town. Margaret Byington.......... 81
House of Brick, A.................... 42
How It Flies; or The Conquest of the Air. Richard Ferris.............. 40
How to Prepare a Paper for Publication. C. B. Vaux...................... 28
Hydraulic Turbines. Viktor Gelpke. Translated by A. H. Van Cleve..... 24
Hydro-Electric Practice. H. A. E. C. von Schon 74
Hydrographic Manual. G. K. Larrison. 72
Hydrometrische Messungs—Verfahren in den Vereinigten Staaten Amerikas. C. E. Grunsky.................... 82
Hygiene, Primer of. J. W. Ritchie and J. S. Caldwell................... 68
Hygiene, Rural Hygiene. H. N. Ogden. 52

I.

Index, Engineering Annual for 1910..... 56
Index to Signal Literature............. 77
Indicator Handbook, A Practical Manual for Beginners. C. N. Pickworth. 37
Individualism and Collectivism, Conflict Between in a Democracy. C. W. Eliot 25
Industrial Management, Principles of. J. C. Duncan.................... 55
Industrial Plants: Their Arrangement and Construction. Charles Day..... 41
Industry and Progress. Norman Hapgood 79
Inland Seas, Our. J. C. Mills.......... 89
Insurance, Social (Workingmen's). G. H. Knibbs 27
Insurance, Workman's Insurance and Compensation in Europe............ 44
International Railway Congress, Bulletin, January 22
Interstate Commerce Commission Report. 73
Introduction to Bacteriological and Enzyme Chemistry. G. J. Fowler..... 53
Introduction to Thermodynamics. John Mills 89
Inventors and Inventions. Henry Robinson 54
Iron and Steel Works Analyses, Practical Guide to. W. Macfarlane....... 67
Irrigation Works, Notes on. N. F. Mackenzie 28

J.

Journal of the American Public Health Association 30
Journal of the Municipal School of Technology, Manchester, England... 14

K.

Kinetic Theory of Engineering Structures. D. A. Molitor.............. 65
Kreisels, Ueber die Theorie des. F. Klein und A. Sommerfeld.......... 28

L.

Landscape Gardening. Edward Kemp.. 84
Landscape Gardening, Greening Pictorial System of. C. E. Greening..... 60
Lehrbuch des Maschinenbaues. L. Klein und A. Nachtweh.................. 82
Life and Work of Charles Benjamin Dudley 84
Life of John Ericsson. W. C. Church.. 57
Light and the Behavior of Organisms. S. O. Mast 35
Lighthouses, A Few Notes on Modern Lighthouse Practice 51
Locomotives, Tests of an E2A Locomotive 13
London Statistics, 1909-10............. 42
Loose-Leaf Digest of Short Ballot Charters. C. A. Beard............. 56

M.

Machine Shop Mechanics. F. H. Colvin. 50
Machine Shop Primer. F. H. Colvin and F. A. Stanley................. 34
Manufacture of Roofing Tiles. W. G. Worcester....................... 53
Maschinentechnisches Lexikon. Felix Kagerer 88
Massachusetts State Board of Health Report 8
Mathematics, Engineering. C. P. Steinmetz 33
Mechanical Drawing for Plumbers. R. M. Starbuck 12
Mechanical Engineering, Pocket Book of. C. M. Sames 31
Mechanics, Elementary Practical. J. M. Jameson 58
Mechanics, Elements of. G. W. Parker. 58
Mechanics for Engineers. Arthur Morley 85

Mechanics, Machine Shop. F. H. Colvin. 50
Mechanics of Internal Work in Elastic Bodies and Systems in Equilibrium, Including the Method of Least Work. I. P. Church 50
Mechanism. S. Dunkerly 54
Metallurgical Processes, Testing for. J. A. Barr 10
Military Topography for Mobile Forces. C. O. Sherrill 78
Mississippi River and Its Wonderful Valley. Julius Chambers 6
Modern Methods of Water Purification. John Don and John Chisholm 68
Monoplanes and Biplanes: Their Design, Construction and Operation. G. C. Loening 88
More Recent Cyanide Practice. H. F. Bain 10
Motion Study. F. B. Gilbreth 35
Motor Cars (Automobiles), Practical Design of. James Gunn 12
Municipal Chemistry. Charles Baskerville 22
Municipal Franchises. D. F. Wilcox 69

N.

National Association of Cement Users, Proceedings 13
National Land System of the United States, 1785-1820. P. J. Treat 3
New York State Barge Canal, Proceedings of the Terminal Commission 84
New Zealand, State Socialism in. J. E. Le Rossignol and W. D. Stewart 9
Notes on Irrigation Works. N. F. Mackenzie 28
Notes on Modern Lighthouse Practice 51
Notes on Plate-Girder Design. C. W. Hudson 81

O.

Oil Analysis, Short Hand-Book of. A. H. Gill 87
Open Specifications, American Asphaltum & Rubber Co 30
Oregon Conservation Commission, Report of 8
Organisms, Light and the Behavior of. S. O. Mast 35
Ottawa River Storage. Pub. Doc 53
Our Home Railways. W. J. Gordon 39
Our Inland Seas. J. C. Mills 89

P.

Paints and Painting Materials, Analysis of. H. A. Gardner 43
Paving Specifications. Association for Standardizing. Proceedings 55
Peers and Bureaucrats. Ramsey Muir 54
Pennsylvania, Third Annual Report of Commissioner of Public Health 4
Perspective, Backbone of. T. U. Taylor. 30
Physical Significance of Entropy, or of the Second Law. J. F. Klein 3
Physics, Principles of. W. F. Magie 89
Plate-Girder Design, Notes on. C. W. Hudson 81
Plumbers, Mechanical Drawing for. R. M. Starbuck 12
Plumbing, Standard Practical. R. M. Starbuck 30
Pocket-Book of Mechanical Engineering. C. M. Sames 31
Ponts en Maconnerie. M. A. Auric 53
Ponts Suspendus. G. L. Le Cocq 57
Popular Hand-Book for Cement and Concrete Users. M. H. Lewis 43
Poussee des Terres. J. Resal 10
Power and Its Transmission. T. A. Smith 76
Practical Design of Motor Cars (Automobiles). James Gunn 12
Practical Guide to Iron and Steel Works Analyses. Walter Macfarlane 67
Practical Stamp Milling and Amalgamation. H. W. MacFarren 10
Practice of Copper Smelting. E. D. Peters 82
Prevention of Infectious Diseases. A. H. Doty 60
Primer of Hygiene. J. W. Ritchie and J. S. Caldwell 68
Principles and Design of Aeroplanes. Herbert Chatley 71
Principles of Electric Wave Telegraphy and Telephony. J. A. Fleming 23
Principles of Electric Engineering. Harold Pender 14
Principles of Handling Woodlands. H. S. Graves 78
Principles of Industrial Management. J. C. Duncan 55
Principles of Physics. W. F. Magie 89
Principles of Public Health. T. D. Tuttle 68
Principles of Scientific Management. F. W. Taylor 70
Proceedings of the Barge Canal Terminal Commission of the State of New York 84
Public Health Movement. E. R. Johnson 83
Public Health, Department of, City of New York, Monthly Bulletin 51
Public Health, Principles of. T. D. Tuttle 68
Public Lands, National Land System of the United States, 1787-1820. P. J. Treat 3
Public Ownership of Telephones on the Continent of Europe. A. N. Holcombe 72

R.

Railroad Administration. Ray Morris 37
Railroad Traffic and Rates. E. R. Johnson and G. G. Huebner 83
Railroads, Scientific Management and the. L. D. Brandeis 55
"Railway Electrical Engineer" Consolidated with the "Electric Trunk Line Age" 31
Railway Problems, Current. S. O. Dunn. 54
Railway Station Service. B. C. Burt 77
Railways, Government Ownership of. A. Van Wagenen 8
Railways, Our Home. W. J. Gordon 39
Readings in Civil Government. P. L. Kaye 30
Results of Chemical and Bacterial Examination of London Waters. Research Work. A. C. Houston 24
Rochester, City Plan for. A. W. Brunner 40
Rock Drills.—Design, Construction and Use. E. M. Weston 2
Roofing Tiles, Manufacture of. W. G. Worcester 53
Rural Hygiene. H. N. Ogden 52

S

Sanitation, Conservation by. E. H. Richards 51
School Building Standards, American. W. T. Mills 75
School Plant, Wider Use of. C. A. Perry 84
Science Conspectus, Quarterly, by the Society of Arts, Massachusetts Institute of Technology 18
Scientific American Cyclopedia of Formulas 40
Scientific Management, Principles of. F. W. Taylor 70
Scientific Management and the Railroads. L. D. Brandeis 55
Securing Efficiency in Railway Work. H. Emerson 27
Seehafenbau. F. W. Otto Schulze 82
Sewage Disposal in the Tropics. W. W. Clemesha 34
Sewage Disposal Works. W. C. Easdale. 12
Sewage Experiments at Philadelphia 74
Sewerage Systems: Their Design and Construction. H. S. Watson 67
Shade-Trees in Towns and Cities. Wm. Solotaroff 36
Ships, Speed and Power of. D. W. Taylor 4
Short Hand-Book of Oil Analysis. A. H. Gill 87
Signal Literature, Index to 77
Slide Rule, The; A Practical Manual. C. N. Pickworth 22
Smoley's Tables. Logarithms, etc. Constantine Smoley 22
Social Ethics and Allied Subjects, Guide to 76
Social Insurance. (Workingmen's.) G. H. Knibbs 27
Socialism, State Socialism in New Zealand. J. E. Le Rossignol and W. D. Stewart 9
Specifications, American Asphaltum & Rubber Co. 30
Specifications for concrete Bridges. W. J. Watson 13
Speed and Power of Ships. D. W. Taylor 4
Spontaneous Combustion of Coal. S. W. Parr and F. W. Kressmann. Pub. Doc. 82
Stamp Milling, Practical, and Amalgamation. H. W. MacFarren 10
Standard Practical Plumbing. R. M. Starbuck 30
State Drainage Work in Minnesota, 1908-1910. Pub. Doc 37
State Socialism in New Zealand. James E. Rossignol and W. D. Stewart 9
Statistics, Elementary Manual of. A. L. Bowley 38
Statistics, London, 1909-1910 42
Statistics of Cities Having a Population of 30,000: 1908. Pub. Doc 38
Steam-Engine and Other Heat-Engines. J. A. Ewing 65
Steam Turbines: Their Design and Construction. R. Kennedy 28
Steel Workers, The. John A. Fitch 81
Storage Battery Engineering. L. Lyndon 29
Structures, Kinetic Theory of Engineering Structures. D. A. Molitor 65
Structures, Theory and Practice of Modern Framed Structures. Johnson, Bryan and Turneaure 85
Survey of the Northern and Northwestern Lakes 74

T.

Technical Writing, Guide to. T. A. Rikard 6
Telegraphy and Telephony, Principles of Electric Wave. (Wireless.) J. A. Fleming 23
Telephones, Public Ownership of on the Continent of Europe. A. N. Holcombe 72
Temperature-Entropy Diagram. C. W. Berry 78
Testing for Metallurgical Processes. J. A. Barr 10
Tests of an E2A Locomotive 13
Text-Book of Elementary Foundry Practice. W. A. Richards 12
Text-Book on Practical Astronomy. G. L. Hosmer 35
Theory and Practice of Modern Framed Structures. Johnson, Bryan and Turneaure 85
Thermodynamics, Introduction to. John Mills 89
Three-Phase Transmission. William Brew 61
Topographie, Traite de. A. Pelletau 42
Transportation in Europe. L. G. McPherson 5
Treasury Construction Society. Proceedings 61
Trees, Care of Trees in Lawn, Street and Park. B. E. Fernow 36
Trees, Shade-Trees in Towns and Cities. William Solotaroff 36
Turbines a Vapeur. F. Cordier 13
Turbines, Hydraulic. Viktor Gelpke. Translated by A. H. Van Cleve 24
Turbines, Steam: Their Design and Construction. R. Kennedy 28
Turbines, Water Turbine Plant. J. O. Böving 22
Typhoid Bacilli, Comparative Vitality of "Uncultivated" and "Cultivated" Bacilli in Artificially Infected Samples of Raw Water, With Special Reference to the Question of Storage. A. C. Houston 35
Typhoid Bacillus "Carrier," Report of the U. S. Public Health and Marine Hospital Service 49

U.

Ueber die Theorie des Kreisels. F. Klein und A. Sommerfeld 28
Ueber Mehrfache Elastische Gewoelbe. W. Schachenmeier 57
United States Geological Survey. Topographic Maps 43, 61
United States, National Land System. 1785-1820. P. J. Treat 3
United States Public Health and Marine Hospital Service. Reports 49, 72
Utilization of California Eucalyptus. H. S. Betts and C. S. Smith. Pub. Doc. 14

V.

Vacuum Cleaning of School Houses. T. D. Perry 79
Vehicles of the Air. Victor Lougheed 71
Vermont, Report of State Geologist. G. H. Perkins 79
Verringerung der Selbstkosten in Adjustagen und Lagern von Stabeisenwalzwerken. Theodor Klönne 24
Verwaltung der Oeffentlichen Arbeiten in Preussen, 1900 bis 1910 61

W.

War or Peace. H. M. Chittenden 53
War Maker, The. Horace Smith 79
Water, Results of the Chemical and Bacterial Examination of London Waters, Research Work. A. C. Houston 24
Water Power for Farm and Country Home. D. R. Cooper 29
Water Purification, Modern Methods of. John Don and John Chisholm 68
Water Storage, Comparative Vitality of "Uncultivated" and "Cultivated" Typhoid Bacilli. A. C. Houston 35
Water Turbine Plant. J. O. Böving 22
Welding: Theory, Practice, Apparatus and Tests. R. N. Hart 10
Well-Drilling Methods. Isaiah Bowman. Pub. Doc. 75
Werner von Siemens: Ein Bahnbrecher in der Wissenschaft Technik und Ethik. Ottomar Beta 82
Wider Use of the School Plant. C. A. Perry 84
Wireless Telegraphy and Telephony, Principles of. J. A. Fleming 23
Wirtschaftlichkeit der Zentralheizung. G. De Grahl 83
Wood Distillation. Pub. Doc 44
Woodlands, Principles of Handling. H. S. Graves 78
Workman's Insurance and Compensation Systems in Europe 44

REVIEWERS OF BOOKS.

Ball, Charles B. 30
Bolton, Reginald P. 8
Breitenbach, H. P. 6
Gerhard, W. P. 83
Gibbs, George 67
Hughes, H. J. 35
Kuichling, Emil 67
Marks, L. S. 66
Moody, L. F. 24
Moore, L. E. 50, 65
Norris, H. H. 26, 37
Peabody, C. H. 4
Pond, M. A. 42
Richards, J. W. 82
Traphagen, F. W. 10
Whipple, George C. 35
Winslow, C.-E. A. 53
Yates, Bruce C. 2

CONSTRUCTION NEWS (SUPPLEMENT).—CONTRACT PRICES.

B.

Ballast, Cincinnati, Ohio 290
*Barge Canal, Albany, N. Y. 9, 10
Basins, inlet, Geneva, Ohio 232
Bends, Pocatello, Idaho 167
BOLTS, Cincinnati, Ohio 129, 167
Wheeling, W. Va 265, 290
Grand Rapids, Mich 231
Borings, core, New York, N. Y. 290
BOXES, hydrant, Salt Lake City, Utah 216
valve, asphalt filled, covers, Salt Lake City, Utah 216
valve, c.-i. covers, Salt Lake City, Utah 216
Bracing, round timber, Albany, N. Y. 10
Branches, on pipe, Geneva, Ohio 232
BRICK, Grand Haven, Mich 35
building, Albany, N. Y. 9
*BRIDGE, Cedar Rapids, Iowa 143
*Peoria, Ill. 72
BRONZE, Cincinnati, Ohio 129, 167
New York, N. Y. 259
Wheeling, W. Va 265, 290
Buildings, removing, Albany, N. Y. 9, 10

C.

CAPS, lamp hole, reset, Geneva, Ohio 232
manhole, reset, Geneva, Ohio 232
manhole, Geneva, Ohio 232
CASING, left in place, New York, N. Y. 242, 243
sinking and core drilling, New York, N. Y. 242, 243
CASTINGS, bronze, Albany, N. Y. 9
iron, machined, Albany, N. Y. 9
iron, plain, Albany, N. Y. 9
iron, plain, Cincinnati, Ohio 129, 167
iron, plain, Grand Rapids, Mich 72
iron, plain, Wheeling, W. Va 265, 290
CASTINGS (Continued).
special, Ogden, Utah 117
special, Pittsfield, Mass. 192
steel, Albany, N. Y. 9
steel, Cincinnati, Ohio 129
steel, New York, N. Y. 290
steel, Wheeling, W. Va. 290
CATCH BASINS, Momence, Ill. 58
Winnetka, Ill. 35
adjustable, Winnetka, Ill. 35
and inlet, Grand Haven, Mich 35
brick, Grand Haven, Mich 35
*CATSKILL AQUEDUCT, Contract 90, New York, N. Y. 290
pressure tunnel, Contracts 63, 65, 66 and 67, New York, N. Y. 242, 243
CEMENT, Cincinnati, Ohio 203, 290
portland, New York, N. Y. 242, 243, 255, 290
CHAMBER, grit, Pocatello, Idaho 167
screen, Pocatello, Idaho 167
*Channel excavation, Chicago, Ill. 265
CHANNELS, drainage, New York, N. Y. 242, 243, 290
for water stops, New York, N. Y. 242, 243
Channeling, Chicago, Ill. 165
Clearing, Albany, N. Y. 9
Cofferdam, Wheeling, W. Va. 129, 167, 265, 290
Compressors, air, New York, N. Y. 242, 243
CONCRETE, Albany, N. Y. 9, 10
Cedar Rapids, Iowa 143
Cincinnati, Ohio 129, 167, 203, 290
Klamath Falls, Ore. 10
Momence, Ill. 58
Moundsville, W. Va. 166
Ogden, Utah 117
Pocatello, Idaho 167
Wheeling, W. Va. 265, 290
arched-void construction, Wheeling, W. Va. 290
cinder, Grand Rapids, Mich 72
CONCRETE (Continued).
extra, Atlanta, Ga. 9
extra, Easton, Md. 231
extra, Grand Haven, Mich 35
in bases, Peoria, Ill. 72
in cylinder piers, Cedar Rapids, Iowa 143
in manholes and sewers, Louisville, Ky. 58
in old piers, Peoria, Ill. 72
in outlet gate chamber, Ogden, Utah 192
in reservoir, Ogden, Utah 192
in shafts and copings, Peoria, Ill. 72
in sidewalks, Peoria, Ill. 72
mass, Southampton, Mass. 264
reinforced, Albany, N. Y. 9, 10
reinforced, Cincinnati, Ohio 129, 167
reinforced, New York, N. Y. 290
reinforced, Ogden, Utah 117
reinforced, Wheeling, W. Va. 265, 290
removed, above water, Peoria, Ill. 72
stone, Grand Rapids, Mich 72
CONNECTION for grouting, New York, N. Y. 242, 243, 290
house, Easton, Md. 231
house, vitrified pipe, Pocatello, Idaho 167
in place, Grand Haven, Mich 35
water, Easton, Md. 231
COVERS, c. i., for old manholes, Grand Haven, Mich 35
manhole and frames, Ogden, Utah 117
CURB and gutter, Grand Haven, Mich. 35
and gutter, Winnetka, Ill. 35
cement, Salt Lake City, Utah 216
circular, Westfield, Mass. 117
curved, Geneva, Ohio 232
false, with gutter, Salt Lake City, Utah 216
reset, Geneva, Ohio 232
reset, Westfield, Mass. 117
stone, Albany, N. Y. 9
straight, Geneva, Ohio 232
straight, Westfield, Mass. 117

D.

*DAM, Cincinnati, Ohio 203
*Holyoke Water Works, Southampton, Mass. 264
*Diversion work, Klamath Falls, Ore. 10
DRAIN, Cincinnati, Ohio 129, 167, 290
brick, Jacksonville, Fla. 166
reinforced-concrete, Jacksonville, Fla. 166
tile, Pocatello, Idaho 167
tile, Wheeling, W. Va. 265, 290
Dredging for crib foundations, Grand Rapids, Mich. 231
DRILLING, BOLT HOLES, Albany, N. Y. 10
Cincinnati, Ohio 129, 167
New York, N. Y. 242, 243, 290
Wheeling, W. Va 265

E.

Earth to be removed, Peoria, Ill. 72
EMBANKMENT, Albany, N. Y. 9, 12
Atlanta, Ga. 9
Klamath Falls, Ore. 10
EXCAVATION, and backfilling, Ogden, Utah 117
below masonry, Louisville, Ky. 58
borrow-pit, Albany, N. Y. 9, 10
earth, Atlanta, Ga. 9
earth, Cincinnati, Ohio 129, 167, 290
earth, Grand Rapids, Mich 72
earth, Grandview Heights, Ohio 166
earth, Louisville, Ky. 58
earth, New York, N. Y. 242, 243, 264
earth, Ogden, Utah 192
earth, Pocatello, Idaho 167
earth, Salt Lake City, Utah 216
earth, Westfield, Mass. 117
earth, Wheeling, W. Va 265, 290
earth, Winnetka, Ill. 35

EXCAVATION (Continued).
in tunnel and drift, New York, N. Y., 242, 243, 290
in tunnel, Ogden, Utah........ 117
old masonry, Albany, N. Y........ 10
rock, Albany, N. Y........9, 10
rock, Atlanta, Ga........ 9
rock, Chicago, Ill........ 265
rock, Cincinnati, Ohio....129, 167, 205, 290
rock, Freeport, Ill........ 203
rock, Geneva, Ohio........ 232
rock, Klamath Falls, Ore........ 10
rock, Momence, Ill........ 58
rock, Moundsville, W. Va........ 166
rock, New York, N. Y..242, 243, 254, 290
rock, Ogden, Utah........ 117
rock, Pocatello, Idaho........ 167
rock, Wheeling, W. Va........265, 290

F.

FENCE, Cincinnati, Ohio........ 290
constructing and erecting, Ogden, Utah 192
wooden, Albany, N. Y........9, 10
FILL, Cincinnati, Ohio........129, 167, 290
Easton, Md........ 231
Peoria, Ill........ 72
Pocatello, Idaho........ 167
Wheeling, W. Va........265, 290
FILLER, asphaltum, Grand Haven, Mich. 35
sand, Grand Haven, Mich........ 35
FILLING, between spandrel wall, Cedar Rapids, Iowa........ 143
stone, in cribs, Albany, N. Y........ 9
*FILTRATION PLANT, Grand Rapids, Mich........ 72
Sigourney, Iowa........ 117
Flooring pool, Klamath Falls, Ore........ 10
Flume, building, Salt Lake City, Utah. 216
FLUSH TANKS, Freeport, Ill........ 203
Moundsville, W. Va........ 166
Sigourney, Iowa........ 117
FORGINGS, Cincinnati, Ohio........129, 167
Wheeling, W. Va........265, 290
Forms for concrete, New York, N. Y., 242, 243, 290
Foundations, Geneva, Ohio........ 232

G.

Gages, Cincinnati, Ohio........ 290
Galvanizing, New York, N. Y...242, 243, 290
GATE, New York, N. Y........242, 243, 290
Ogden, Utah........ 117
Gate house, Albany, N. Y........ 9
Grading, Geneva, Ohio........ 232
Grating, Ogden, Utah........ 117
Gravel, extra, Grand Haven, Mich........ 35
Grouting rings and pads, New York, N. Y........ 290
Grout, mixed and placed, New York, N. Y........242, 243, 290
GUTTERS, Albany, N. Y........ 9
Salt Lake City, Utah........ 216

H.

Handrails, Cedar Rapids, Iowa........ 143
HEADERS, Geneva, Ohio........ 232
Grand Haven, Mich........ 35
Hydrants, Grandview Heights, Ohio.... 166

I.

INLETS, Grand Haven, Mich........ 35
Moundsville, W. Va........ 166
Winnetka, Ill........ 35
Interlining drainage, New York, N. Y. 242, 243, 290
IRON AND STEEL, New York, N. Y. 242, 243, 254, 290
Cincinnati, Ohio........ 290
IRON, angle, Grand Rapids, Mich........ 231
hauled, Southampton, Mass........ 264

L.

Labor, Grand Haven, Mich........ 35
Ladders, reinforced concrete, New York, N. Y........242, 243, 290
LAMP HOLES, Easton, Md........ 231
Freeport, Ill........ 203
Moundsville, W. Va........ 166
Sigourney, Iowa........ 117
Cedar Rapids, Iowa........ 148
Lining, Albany, N. Y........9, 10
*LOCK AND DAM, Cincinnati, Ohio.129, 167
*Wheeling, W. Va........265, 290
LUMBER, Albany, N. Y........9, 10
Grand Rapids, Mich........ 231
Moundsville, W. Va........ 166
Momence, Ill........ 58
Pocatello, Idaho........ 167

M.

Machines, grouting, New York, N. Y. 242, 243
MANHOLES, Easton, Md........ 231
Freeport, Ill........ 203
Geneva, Ohio........ 232
Grand Haven, Mich........ 35
Jacksonville, Fla........ 166
Momence, Ill........ 58
Moundsville, W. Va........ 166
Pocatello, Idaho........ 167
Salt Lake City, Utah........ 216
Sigourney, Iowa........ 117
Winnetka, Ill........ 35
MASONRY, bridge coping, Albany, N. Y. 9
brick, Grand Rapids, Mich........ 72
brick, Louisville, Ky........ 58
brick, New York, N. Y......242, 243, 290
concrete, New York, N. Y.242, 243, 254, 290
concrete, Louisville, Ky........ 58
cyclopean, Southampton, Mass........ 264
in walls, Ogden, Utah........ 117
rubble, New York, N. Y........242, 243
METAL, work in valves, buffer beams, lock gates and head gates, Albany, N. Y........9, 10
work furnished by city, setting, New York, N. Y........242, 243, 290
Peoria, Ill........ 72
Mortar, cement, Ogden, Utah........ 117

P.

Packing, dry, in tunnel, New York, N. Y........ 242
Pads, grouting, New York, N. Y....242, 243
Painting, Albany, N. Y........ 9
PAVEMENT, Cincinnati, Ohio........ 290
Geneva, Ohio........ 232
Grand Haven, Mich........ 35
New York, N. Y........242, 243
Salt Lake City, Utah........ 216
Winnetka, Ill........ 35
asphalt on concrete, Grand Haven, Mich........ 35
asphalt with foundation, Salt Lake City, Utah........ 216
Bessemer block, Grand Haven, Mich... 35
block, Westfield, Mass........ 117
brick, Winnetka, Ill........ 35
concrete, Cincinnati, Ohio........129, 167
concrete, Wheeling, W. Va........265, 290
macadam asphalt, Grand Haven, Mich.. 35
on bridge, Peoria, Ill........ 72
stone, Albany, N. Y........ 10
stone, Klamath Falls, Ore........ 10
stone, Wheeling, W. Va........265, 290
tar, Grand Haven, Mich........ 35
PIERS, brick, Sigourney Iowa........ 117
*work Grand Rapids Mich........ 231
PILES foundation, Albany, N. Y........ 9
in cylinder piers, Cedar Rapids, Iowa. 143, 231
PILES (Continued).
mooring, Albany, N. Y........ 9
round, Wheeling, W. Va........265, 290
sheet, wooden, Albany, N. Y........9, 10
steel, Albany, N. Y........9, 10
timber, Peoria, Ill........ 72
PIPE, Atlanta, Ga........ 9
Cincinnati, Ohio........129, 167
Easton, Md........ 231
Freeport, Ill........ 203
Geneva, Ohio........ 232
Sigourney, Iowa........ 117
Wheeling, W. Va........265, 290
Vancouver, B. C........ 300
bronze, New York, N. Y......242, 243, 290
c. i., Easton, Md........ 231
c. i., Grandview Heights, Ohio........ 166
c. i., Grand Rapids, Mich........ 72
c. i., Moundsville, W. Va........ 166
c. i., New York, N. Y........ 254
c. i., Pittsfield, Mass........ 192
c. i., Pocatello, Idaho........ 167
concrete, Momence, Ill........ 58
concrete, Ogden, Utah........ 117
iron, Momence, Ill........ 58
Kalamein, Ogden, Utah........ 117
*lapwelded, Vancouver, B. C........ 300
specials, Albany, N. Y........ 10
specials, Grandview Heights, Ohio.... 166
specials, New York, N. Y. 242, 243, 254, 290
*steel riveted, Vancouver, B. C........ 300
terra cotta, Jacksonville, Fla........ 166
specials, Albany, N. Y........9, 10
sewer, Jacksonville, Fla........ 166
vitrified, Momence, Ill........ 58
vitrified, Moundsville, W. Va........ 166
vitrified, New York, N. Y.242, 243, 254, 290
vitrified, Ogden, Utah........ 117
vitrified, Pocatello, Idaho........ 167
wood stave, Ogden, Utah........ 117
PLATES, gutter in place, Grand Haven, Mich........ 35
PUDDLE, Albany, N. Y........9, 10
PUMPING, from shafts and tunnel driving construction, New York, N. Y. 242, 243, 290

R.

Railings, Albany, N. Y........9, 10
REFILLING and embanking, New York, N. Y........242, 243, 254
gravel, below masonry, Lousiville, Ky. 58
in downtake shafts, New York, N. Y.. 290
REINFORCING METAL, Albany, N. Y.9, 10
Cedar Rapids, Iowa........ 143
Reservoir, concreting, Ogden, Utah...... 182
RIP RAP, Albany, N. Y........9, 10
Chicago, Ill........ 265
Cincinnati, Ohio........129, 167, 290
Ogden, Utah........ 117
Wheeling, W. Va........265, 290
Risers, pipe, Pocatello, Idaho........ 167
Rods, tie, Grand Rapids, Mich........ 231
Roofing, Albany, N. Y........ 9

S.

Sand for grout, New York, N. Y., 242, 243, 290
Scaling in shafts, New York, N. Y.... 290
*Sewage disposal works, Atlanta, Ga.... 9
*Sewer system, Pocatello, Idaho........ 167
*SEWERS, Freeport, Ill........ 203
*Easton, Md........ 231
*Jackson, Fla........ 166
*Louisville, Ky........ 58
*Momence, Ill........ 58
*Moundsville, W. Va........ 166
*Sigourney, Iowa........ 117
Winnetka, Ill........ 35
SEWERS (Continued).
branch, Louisville, Ky........ 58
concrete, Moundsville, W. Va........ 166
house, Geneva, Ohio........ 232
reinforced concrete, Moundsville, W. Va........ 166
Shaft, New York, N. Y........242, 243
SHEETING, bracing, Albany, N. Y....9, 10
Easton, Md........ 231
Geneva, Ohio........ 232
SIDEWALKS, Albany, N. Y........ 9
Geneva, Ohio........ 232
*Siphon, New York, N. Y........ 290
Spikes, Grand Rapids, Mich........ 231
STEEL, cast, Peoria, Ill........ 72
cast, Wheeling, W. Va........ 265
reinforcing, Cincinnati, Ohio......129, 167
reinforcing, Grand Rapids, Mich...... 72
reinforcing, Klamath Falls, Ore...... 10
reinforcing, New York, N. Y., 242, 243, 254, 290
reinforcing, Peoria, Ill........ 72
reinforcing, Southampton, Mass...... 264
reinforcing, Wheeling, W. Va....265, 290
structural, Albany, N. Y........9, 10
structural, Cincinnati, Ohio........129, 167
structural, Grand Rapids, Mich...... 72
structural, Klamath Falls, Ore........ 10
structural, New York, N. Y., 242, 243, 254, 290
structural, Ogden, Utah........ 117
structural, Wheeling, W. Va........265, 290
STONE, Grand Rapids, Mich........ 231
bulkhead, Westfield, Mass........ 117
crushed, Grand Rapids, Mich........ 35
crushed and gravel, New York, N. Y., 242, 243, 290
crushed and gravel, Pocatello, Idaho. 167
derrick, Cincinnati, Ohio........ 290
*Street improvement, Westfield, Mass... 117
Surfacing, Grand Rapids, Mich........ 72

T.

Trees, removing, Geneva, Ohio........ 232
TIMBER, Albany, N. Y........ 9
Cincinnati, Ohio........129, 167, 296
Grand Rapids, Mich........ 231
New York, N. Y........242, 243, 259
Salt Lake City, Utah........ 216
Wheeling, W. Va........265, 290
creosoted, Peoria, Ill........ 78
Trench, Moundsville, W. Va........ 166
Trimming in shafts and tunnels, New York, N. Y........242, 243, 290

U.

UNDERDRAIN, Geneva, Ohio........ 232
Louisville, Ky........ 58
Moundsville, W. Va........ 166

V.

VALVES, air, Ogden, Utah........ 117
back pressure, Ogden, Utah........ 117
flap, Easton, Md........ 231
gate, Grandview Heights, Ohio........ 166
gate, Ogden, Utah........ 117
sluice, Ogden, Utah........ 117

W.

WALL, retaining concrete, Chicago, Ill. 265
wash, Albany, N. Y........9, 10
Walks, cement, Grand Rapids, Mich.... 72
*WATER conduit, Ogden, Utah........ 117
*mains, Grandview Heights, Ohio..... 166
*pipe, Pittsfield, Mass........ 192
Waterproofing, Albany, N. Y........ 9
Wrought iron, Albany, N. Y........ 9

Y.

Ys, Pocatello, Idaho........ 167